Department of
Health and Human Services
Commissioner
Nicholas Toumpas

NH Public Health Laboratories Newsletter

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

Christine Bean, Ph.D.
Director
Public Health Laboratories

Volume 4, Issue 1 **Spring 2010**

Inside this issue:

New Hampshire Public Health Laboratories

Helping Protect the Community Through Service & Education

Anthrax in NH!

Prepared by Daniel Tullo, Microbiology Program Manager

Christmas Eve is traditionally a time of relaxation and reflection; most residents of New Hampshire are preparing for family gatherings and other events to celebrate the season. In recognition of the holiday, many places of business close early or do not open at all. Unfortunately, this past Christmas Eve was the exception. As with most emergencies, this one began with a phone call. The Massachusetts Department of Public Health called to inform us that a resident of New Hampshire was diagnosed with gastrointestinal anthrax.

Instantly our thoughts changed from holiday festivities to what needed to be done next. There were so many unknowns: Was the patient seen at a NH hospital? Were there samples available to confirm the diagnosis? Was the patient exposed to anthrax in New Hampshire? The answer to the first two questions was yes. The patient was seen at a NH hospital and a sample was available. On Christmas Eve, polymerase chain reaction (PCR), a rapid molecular procedure, was performed on the isolate and it tested positive for *Bacillus anthracis*. Culture confirmation and sensitivity testing were set up on Christmas Day and results were obtained the next day.

In answer to the third question, the positive isolate from the local hospital offered evidence that the patient had most likely been exposed in New Hampshire. But with this new information an even more disturbing question surfaced: Was this the beginning of a terrorist event? Most drills and scenarios assume the first signs of a biological attack will be identified at an emergency room. On December 25th, an emergency investigative team led by the NH Division of Public Health Services' (DPHS) Bureau of Disease Control (BDC), was convened to address this question.

Part of the investigation included gathering a detailed patient history, which revealed that the patient recently attended a drumming event. The event included drums made from African animal hides. There have been other incidents in the US involving African animal hides and drum making which resulted in exposure to *B. anthracis*--one in Danbury, Connecticut and one in New York, New York.

The investigations led to the United Campus Ministry (UCM) building in Durham, NH, the location where the drumming event took place. On Saturday, December 26th, the NH Army National Guard and the NH Department of Environmental Services (NH DES) collected environmental samples from the UCM building and the African drums stored there. The UCM building was closed until further notice under a quarantine order.

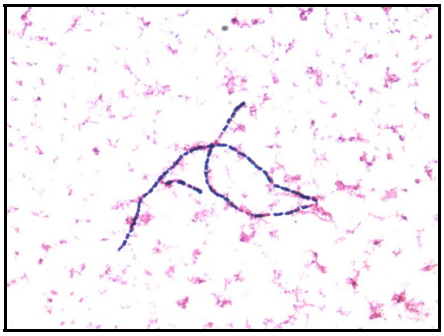
Investigators from the EPA collect samples from the UCM building in Durham, NH to be tested for B. anthracis. *(Credit: AP)*

The NH PHL organized a seven-member team to receive and provide rapid testing results for the environmental samples. The majority of the initial PCR results on the direct samples, which were available the same day, were negative, although two were inconclusive. Traditional microbiological culture was performed and on Sunday, December 27th, *B. anthracis* was isolated from three of the samples. PCR was performed on the culture isolates from swabs of two drums stored

(Continued on page 2)

(Continued from page 1)

in the basement and one electrical outlet, providing same day, rapid confirmatory identification.



Actual gram stain of B. anthracis *culture from the patient.*

The investigative team felt the source of the exposure had been identified, however they continued with a detailed epidemiological investigation because many questions still remained unanswered. Were any other participants in the drumming event showing symptoms of *B. anthracis* infection? Were there other drums contaminated with *B. anthracis*? How extensively was the UCM building contaminated with *B. anthracis* spores? Fortunately, no other individuals were identified with the symptoms of anthrax disease. BDC staff worked tirelessly to contact everyone who attended the drumming circle. Of the 210 people who were identified as being potential associates, 84 were offered post-exposure prophylaxis (PEP). Twenty-four declined PEP, 34 began taking the antibiotic ciprofloxacin, and one person was administered ciprofloxacin and the anthrax vaccine (25 people failed to respond).

The US EPA, in conjunction with the Centers for Disease Control and Prevention (CDC) and NH State agencies, developed an environmental sampling plan for the UCM building and for the additional African drums present at the drumming event to determine the extent of contamination.

The sample strategy called for a semi-quantitative procedure to determine the number of *B. anthracis* spores present in the samples. This semi-quantitative procedure is considerably more labor intensive than the procedure initally used to identify the presence of *B. anthracis*. The CDC estimated 10-20 samples could be processed per day using this method. The NH PHL quickly determined that additional laboratory resources would be needed in order to produce timely results for the more than 70 samples scheduled to be collected. The NH PHL called upon its partners in the National Laboratory Response Network (LRN) for assistance.

Members of the LRN throughout the region responded by offering laboratory testing support. Three laboratories with prior experience with the semi-quantitative method were selected: the New York City Public Health Laboratory, the Virginia Division of Consolidated Laboratory Services, and the Connecticut Public Health Laboratory.

On January 7, 2010, samples were collected and immediately distributed to the four public health laboratories. Within 1-2 days, results, including samples testing positive for *B. anthracis,* were available. Using the LRN results, the investigative team determined that there were low levels of *B. anthracis* spore contamination in the UCM building.

Due to their experience remediating anthrax-contaminated buildings in other states, the US EPA and the CDC worked with DPHS on a plan for decontamination. Follow-up testing was conducted by the NH PHL after the building was cleaned, and the NH DHHS lifted the quarantine order on April 16, 2010. "We have conducted follow-up testing and the results show the building is no longer contaminated with the naturally occurring anthrax," said DHHS Public Health Director Dr. José Montero. "Since we have determined there is no danger to the public, we are lifting the order and clearing the Ministry building for normal use."

Healthcare-associated Infection Characterization Project

Prepared by Rebecca Adams, Microbiologist, Clinical Microbiology Unit

Over the last three decades, hospitals around the country have seen an increase in multidrug-resistant organisms (MDROs), especially methicillin-resistant *Staphylococcus aureus* (MRSA). Treating patients with MDROs, such as MRSA, has become increasingly more difficult due to the limited treatment options available. These infections have been associated with increases in hospital stays, healthcare costs, and mortality. These same traits have also been observed with *Clostridium difficile*-associated disease. To help with investigating future outbreaks, the NH PHL is now performing molecular characterization of select pathogens responsible for healthcare-associated infections (HAI).

The NH PHL and the BDC have been awarded funding from the American Recovery and Reinvestment Act to build and sustain State programs for the prevention of HAI. The NH PHL proposed a project to identify strains of MRSA and *C. difficile* currently circulating within the State.

Little is known about the strains of MRSA and *C. difficile* currently circulating in the hospitals and communities of NH and there is no baseline strain information for these organisms. The NH PHL is recruiting hospitals from around the State to submit isolates or specimens for confirmation testing and molecular characterization by pulsed-field gel electrophoresis (PFGE). Any hospitals interested in submitting specimens should contact Wendy Lamothe, Clinical Microbiology Unit Supervisor, at (603) 271-5871. Approximately 1,200 isolates will be collected over the course of two years. Characterization data from this study will be linked to epidemiological data collected by the BDC to evaluate strain distribution. This will aid greatly in assessing the extent of an outbreak and identifying possible sources.

H1N1 Quality Monitor

Prepared by Jennifer Stearns, Microbiologist, Virology and Special Testing Unit

The real-time reverse transcriptase polymerase chain reaction (rRT-PCR) test for the novel 2009 H1N1 influenza virus contains a marker that will detect human genetic material in a specimen. If human genetic material is not detected, then the test and specimen are considered invalid. The CDC recommends that the clinician collect a nasopharyngeal (NP) swab, nasal aspirate, or a combined NP swab with oropharyngeal swab.[1] Nasal swabs, oropharyngeal swabs, bronchoalveolar lavages (BAL), and sputum specimens are also acceptable. In addition, the CDC states swab specimens should be collected using swabs with a synthetic tip (e.g., polyester or Dacron®) and an aluminum or plastic shaft. Swabs with wooden shafts, cotton tips, or calcium alginate tips are not acceptable for this test. Specimens for H1N1 testing should be placed into sterile viral transport medium (VTM) and immediately placed on ice, cold packs, or at 4°C for transport to the laboratory. VTM is a special medium containing a protein stabilizer, a buffer solution, and antibiotics to discourage non-viral growth. Once collected, specimens must be kept at 4°C for no more than four days before being tested.

Because 2009 H1N1 was a novel strain and new to public health testing, the NH PHL's Quality Assurance (QA) Program wanted to look into some potential causes for invalid specimens based on some sample collection criteria from the CDC. In New Hampshire, the specimen type, transit time, and mean daily temperature were tracked to determine whether there was a correlation between these factors and the number of invalid specimens received. Of the 2,272 specimens received for H1N1 testing from October 5, 2009 to March 12, 2010, 84 (3.7%) were found to be invalid. Overall, a relatively low percentage of specimens were invalid, but the NH PHL still wanted to seek a reason for the occurrence, with hopes of improving future specimen quality.

Specimen type was the first factor that was examined. Of the 84 invalid specimens, eight (8) were NP swabs in saline only, seventy-two (72) were NP swabs in VTM, three (3) were dry NP swabs, and one (1) was a BAL (Table 1). It does not seem likely that specimen type had an effect on invalid specimens since 86% of the invalid specimens received were collected using the CDC-approved media type.

Table 1. Types of specimens received at the NH PHL.

Specimen Type	Total Number of Specimens	Number of Invalid Specimens	Percent of Invalid Specimens
NP swab in saline	106	8	7.5
NP swab in VTM	1836	72	3.9
Dry NP swab	303	3	1.0
BAL	8	1	12.5
Other	41	0	0

(Continued on page 4)

NH PHL Jumble

Game submitted by Peggy Sweeney, TB Unit Supervisor
Drawing by Hannah Doyle, Lab Assistant, Central Services

Unscramble the lab-associated words and write one letter in each box. Use the circled letters to find the answer to the question!

OERMPSCOIC

RAXTNHA

UMTITRI

LITQUYA

LOTRONC

A: _____

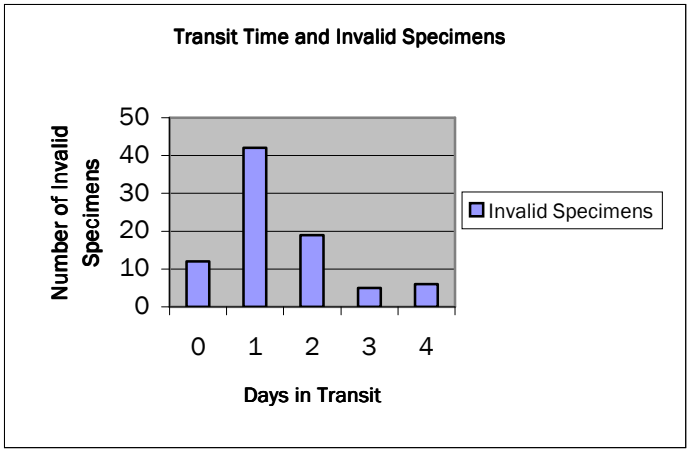
The answer can be found in the next edition of the NH PHL newsletter!

WHAT DO MICROBIOLOGISTS HAVE THAT SOME EMPLOYEES LACK?

(H1N1 Quality Monitor, continued from page 3)

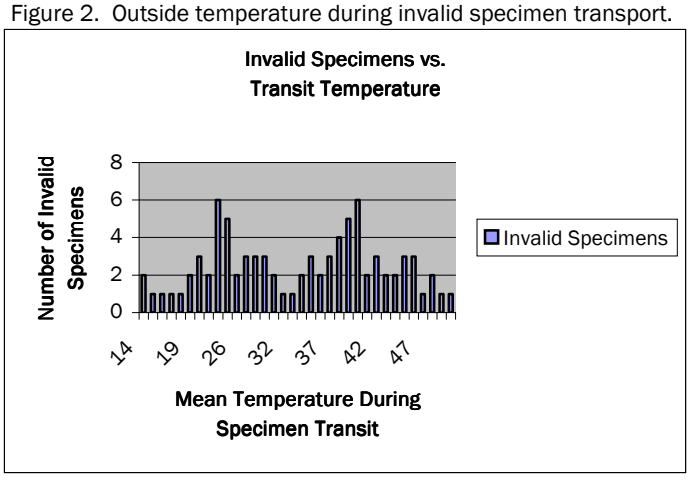
Next, transit time was looked at as a contributing factor. As previously stated, all specimens should be tested within four days of collection, although within twenty-four hours is ideal. All of the NH PHL's invalid specimens were tested within the four-day time frame and most were tested within twenty-four hours of collection (Figure 1). Therefore, transit time does not appear to be a factor.

Figure 1. The number of invalid specimens compared with days in transit.

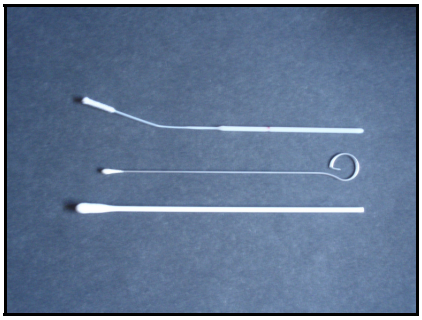


Finally, mean daily temperature during specimen transit time was examined as a possible factor. Predominantly, coolers and ice packs are utilized during transit to keep specimens at the appropriate temperature, however the NH PHL did receive some samples through the mail without ice packs. Since the temperature cannot be controlled with mailed shipments, the QA Program looked to see if the mean daily temperature during transit would have an effect on specimen validity (Figure 2). If temperature were a factor, the number of invalid specimens would be expected to rise as the daily outdoor temperature rises. However, only two peaks were noted, around 25°F and 40°F, suggesting that temperature does not cause invalid specimens.

Figure 2. Outside temperature during invalid specimen transport.



In conclusion, none of the three factors explored seemed to cause invalid specimens. One criterion not yet explored in this study is collection technique, which is a major contributor to specimen quality. Interestingly, 43% of the invalid specimens were submitted by one provider. One possible reason for this might be the consistent collection of poor quality specimens by one or more staff members at this facility. Poor specimen collection technique could be remedied in the future by offering training sessions to facilities that continue to submit invalid specimens. However, poor collection technique cannot be truly measured in the laboratory. Nevertheless, one item that could be tracked is the exact type of swab received. A true NP swab is small with a wire shaft; the size and design of the swab make it possible to truly reach the NP passages and collect a quality specimen. Frequently the NH PHL receives large, inflexible swabs that are not suitable for collecting NP specimens, even though the stated source was NP. After examining the aforementioned potential causes and determining that they were not causing invalid specimens, the NH PHL Virology Unit decided to begin tracking the type of swab received and comparing that with the specimen source stated on the requisition. The Virology Unit is also interested in seeing if flocked swabs, which have been found to collect more cells than a normal NP swab, lead to fewer invalid specimens.[2] A follow up with our findings will be published in the next newsletter.



From top to bottom: a flocked swab (similar to a pipe cleaner), a typical NP swab with a wire shaft, and a less flexible nasal swab.

For a clear-cut video on how to properly collect a NP specimen, follow this link from COPAN Diagnostics: http://www.copanusa.com/index.php/education/videos/.

References:

1. "Interim Guidance on Specimen Collection, Processing, and Testing for Patients with Suspected Novel Influenza A (H1N1) Virus Infection ." *H1N1 Flu*. Department of Health and Human Services Centers for Disease Control and Prevention, 13 May 2009. Web. 29 Mar 2010. <http://www.cdc.gov/h1n1flu/specimencollection.htm>.
2. Daley, Peter. "Comparison of Flocked and Rayon Swabs for Collection of Respiratory Epithelial Cells from Uninfected Volunteers and Symptomatic Patients." *Journal of Clinical Microbiology* 44.6 (2006): 2265-67. Web. 28 Apr 2010.

Tritium Leak at the Vermont Yankee Nuclear Power Station

Prepared by Debanond Chakraborty, Radiological Environmental Monitoring Unit Supervisor

Tritium (*a.k.a.* triton or hydrogen-3), from the Greek word meaning "third," is a naturally occurring radioactive form of hydrogen that is produced in the atmosphere when cosmic rays collide with nitrogen. As a result, tritium is found in very small or trace amounts in groundwater throughout the world. It is also a byproduct from the production of electricity by nuclear power plants. Tritium is one of the least dangerous radionuclides because it emits very weak beta radiation. It does not pose any health hazard externally, however it can be an internal hazard if very large quantities are inhaled, ingested via food or water, or absorbed through the skin, particularly over a long period of time. As with all ionizing radiation, such internal exposure to tritium may increase the risk of developing cancer.

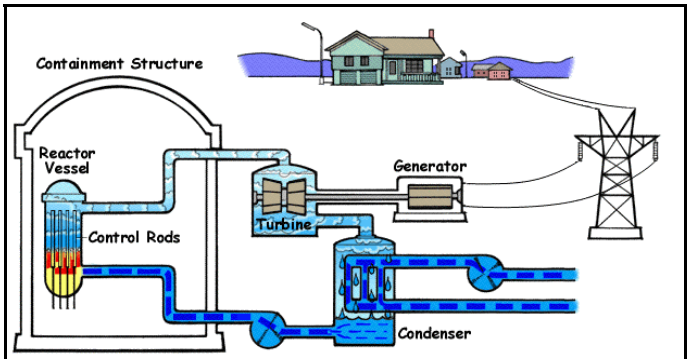
The NH PHL Radiochemistry Unit conducts independent environmental surveillance for the Seabrook Nuclear Power Station (SNPS) located in the seacoast area of NH and for the Vermont Yankee Nuclear Power Station (VYNPS) located in Vernon, VT. Environmental monitoring is conducted for one or more of the following reasons: (1) to confirm that effluent releases to the environment are as predicted, (2) to calculate doses to the public when effluent monitoring is not available, (3) to demonstrate compliance with regulatory limits, (4) to maintain public confidence and provide the public with reliable data regarding the environmental impact of a facility, and (5) to help identify and quantify unplanned, unmonitored releases.

The Radiochemistry Unit collects and analyzes farm, sea and river water, sand, sedimentation, vegetation, dairy milk, particulate air filters, surface deposition wipes, and aquatic biota (such as finfish, lobster, and mussels) as part of the ongoing environmental monitoring program. A total of seventy thermoluminescent dosimeter (TLD) stations have been placed statewide to directly measure gamma radiation levels due to human activities as well as the natural background. TL dosimetry analysis shows that the radiation dose in New Hampshire is within historical limits, i.e. 10-30 millirem (mrem) per quarter and 75-115 mrem per year. The annual dose limit for a member of the general public is 100 mrem. This limit covers exposure to man-made radiation of all types, except those arising from medical procedures, and it excludes any background (natural) radiation.

The Vermont Department of Health was notified by VYNPS on January 7, 2010 that tritium had been detected in a groundwater monitoring well on the site of the plant. This signaled an unintended release of radioactive material, and the NH PHL became involved with water analysis to determine the health risk to the public because the nearby Connecticut River borders NH. Since the start of the event, weekly water samples have been collected from the river, both upstream and downstream from VYNPS, and from four privately owned wells in Hinsdale, NH (which is approximately one mile from the VYNPS). No tritium above the threshold level, i.e. 500 picoCuries per liter (pCi/L) has been found to date. This means that essentially only background levels have been detected. VYNPS is also continually monitoring the river and other drinking water sources around the plant, as is the Vermont Department of Health. Both confirm that no elevated levels of tritium have been found. On February 14, 2010 the source of the tritium leak was determined to be condensed steam that leaked out at a failed joint in the Advanced Off-Gas pipe at the plant (Figure 1, condenser area). Since the identification and remediation of the leak, samples taken from the monitoring well closest to the leak have shown steadily decreasing concentrations of tritium.

The liquid scintillation counter (LSC) is what the NH PHL uses to detect and measure tritium levels in a sample. The H-3 hot-graph/spectrum is displayed on the monitor.

Figure 1. A diagram of a nuclear reactor similar to one at VYNPS.



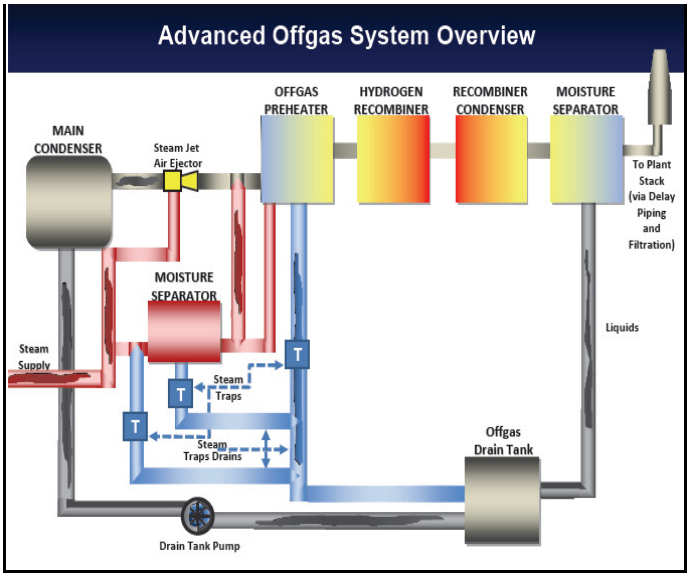
To generate electricity, the VYNPS uses heated water to create steam, which rotates turbines that drive the generators. Steam that has passed through the turbines must be condensed, requiring the removal of heat. To remove the heat and lower the temperature of the steam in the condenser, Connecticut River water is used. The cooled water is then pumped back into the reactor vessel where it is heated again and becomes steam. The source of the leak was identified as a failed joint in the Advanced Off-Gas pipe (Figure 2), which is a part of the condenser. Thus it was feared that liquid that had been in the reactor (and therefore contained tritium and other metals) might come in contact with the river water, even though the river water is pumped through separate pipes. To ensure that the contaminated water had not seeped into the river water pipes, the NH PHL has been collecting weekly samples from the Connecticut River. No tritium contamination has been found to date.

US nuclear power plants under controlled, monitored conditions are allowed to release effluents that are within the conservative limits of the US Nuclear Regulatory Commission (NRC). The US NRC requires that nuclear power plants measure the radioactive effluent releases and determine the estimated public dose from those effluents on a quarterly basis. To date, the VYNPS has never exceeded the threshold for controlled releases and no radiation levels above what occurs naturally in the environment have been found.

(Continued on page 6)

(Continued from page 5)

Figure 2. The leak was found in the Advanced Off-Gas system, which is a part of the condenser.



VY Remediation Plan and NH Strategies

The following actions have been undertaken by VYNPS as part of their remediation plan:

- Pump shallow tritium-contaminated water into above-ground containers for processing and reuse in the steam cooling process instead of using river water
- Remove about 150 cubic feet of soil that contains small amounts of other contaminants such as manganese and cobalt
- Complete root cause analysis
- Predict and prevent any further leaks
- Continue enhanced monitoring

The DHHS sampling team currently collects 9-12 water samples weekly and the NH PHL analyzes them for tritium. This will continue until the situation is resolved.

H-3 Facts:

- Radiological half life: 12.3 years
- Biological half life: 10 days
- Like hydrogen, tritium can bond with oxygen to form "tritiated" water, which is colorless, odorless, and chemically identical to normal water
- Range: 6 mm in air and cannot penetrate the dead layer of human skin
- EPA maximum contaminants level in drinking water: 20,000 pCi/L, i.e. the total effective dose from consuming this water for a year would be 4 mrem. The federal and state total dose limit to the public is 100 mrem in a year.
- Tritium cannot be filtered out of the water

UVM Student Conducts Norovirus Research Project

Submitted by Dr. Fengxiang Gao, Virology and Special Testing Program Manager

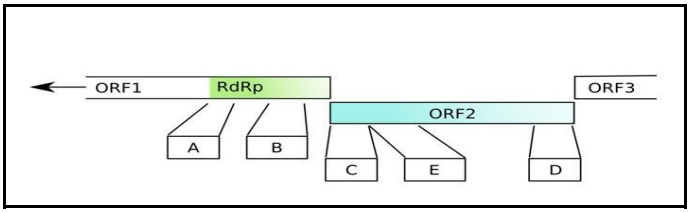
One of the Essential Public Health Services is assuring a competent public and personal healthcare workforce.[1] Following the framework of the Essential Services, the NH PHL hosts interns from both the University of New Hampshire and the University of Vermont (UVM) Medical Laboratory Science Programs. In the spring of 2009, Brittney Mailhot, a UVM medical laboratory science student, spent her internship with the NH PHL in order to become more familiar with molecular testing and to gain some exposure to the virological testing that is not done in a hospital laboratory setting.

During her stay at the NH PHL, Brittney conducted a research project on norovirus, a causative agent of acute gastroenteritis outbreaks. The objectives of the project were:

- To determine the genotypes of norovirus that circulated in NH in 2006-07 winter season and
- To demonstrate the genetic change of norovirus in the state by comparing that data with the data derived from the 2007-08 and 2008-09 seasons.

A variety of methods were used in this project, including ribonucleic acid (RNA) extraction, real-time PCR, conventional reverse transcriptase PCR, electrophoresis, PCR product purification and sequencing reaction, deoxyribonucleic acid (DNA) sequencing (using the Applied Biosystems 3130XL DNA Analyzer), and sequence analysis.

Utilizing the above molecular techniques, Brittney identified fourteen norovirus positive specimens from archived stool samples collected in the 2006-07 season. The C region of the norovirus genome was amplified and sequenced from these specimens. Sequence analysis revealed that thirteen of them were classified as norovirus genogroup II, genotype IV (GII.4), 2006b strain and one was a GII.4 2006a strain. Compared with sequence data derived from the specimens collected during the 2007-08 and 2008-09 norovirus seasons, this project has demonstrated that the norovirus GII.4 2006b strain was predominant in both the 2006-07 and 2007-08 winter seasons. However, a new strain of GII.4 was identified in late 2008, which was co-circulating with the 2006b strain during the 2008-09 season.



Sequencing regions of the norovirus genome.[2] The NH PHL sequences the C region to determine which strains are circulating in the state.

Norovirus genotyping by DNA sequencing has provided information on the genetic changes of norovirus, which could assist in identifying a source of disease transmission for epidemiological investigations of public health significance. Incorporation of DNA sequencing into norovirus surveillance would facilitate the identification of the causative agent of an outbreak and increase the understanding of the epidemiology of norovirus infection. Brittney presented her research findings to staff at the NH PHL and to her peers and educators at the UVM.

References

1. "10 Essential Public Health Services." *National Public Health Performance Standards Program*. Department of Health and Human Services Centers for Disease Control and Prevention, 15 Oct 2008. Web. 28 Apr 2010. <http://www.cdc.gov/od/ocphp/nphpsp/essentialphservices.htm
2. "Sequencing Regions." *NoroNet*. Web. 15 Mar 2010. <http://www.noronet.nl/databases/>.

Of Mice, Men, and Mussels

Prepared by Peter Wikoff, Food Safety Microbiology Unit Supervisor

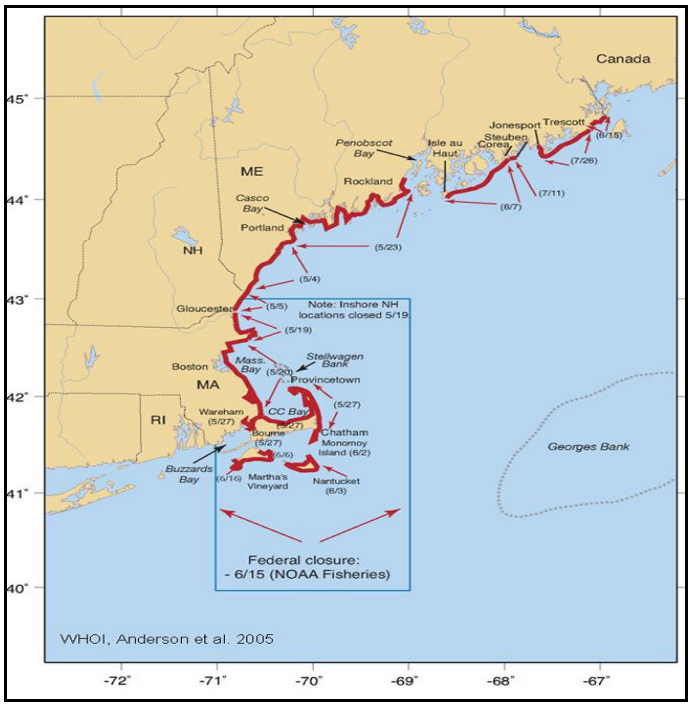
Paralytic shellfish poisoning (PSP) is associated with the ingestion of bivalve mollusks (oysters, mussels, and clams). PSP is caused by neurotoxins, such as saxitoxin, which is found in toxin producing algae. In the New England area, the algae *Alexandrium fundyense* is the primary cause of PSP. Bivalve mollusks feed on the algae and concentrate the toxins in their flesh. The heat-stable, water-soluble toxin is not destroyed during cooking and can cause paralysis and death in humans.

An image of A. fundyense*, the primary cause of PSP in the Northeast.*[1]

Early symptoms, such as the tingling of lips and tongue, may begin within minutes to hours of eating infected shellfish. Depending on the amount of toxin ingested, symptoms may progress from tingling to loss of control of extremities followed by difficulty breathing. Some people have experienced a sense of floating or nausea. Respiratory failure and death may occur from paralysis in severe cases. There is no antidote, however if supportive therapy is administered, most survivors recover fully. PSP is prevented by proactive monitoring programs throughout the northern Atlantic and Pacific coasts of North America and rapid closure of suspect or confirmed toxic shellfish harvest areas.

Scientists from the Woods Hole Oceanographic Institution (WHOI) and the National Oceanic and Atmospheric Administration (NOAA)-funded Gulf of Maine Toxicity Project have issued an outlook for a significant bloom of *Alexandrium* in the spring and summer of 2010. A cyst survey conducted in late 2009 showed the greatest number of *Alexandrium* cysts the team has ever seen—more than 60 percent higher than what was observed prior to the historic red tide of 2005. Cyst abundance in the fall is an indicator of the magnitude of the bloom the following year. However, certain wind patterns and ocean currents in the late spring and summer are needed to transport it onshore where it can affect the coastal shellfish.

The Food Safety Microbiology unit of the NH PHL monitors PSP levels from the beginning of April through October. Mussel samples are collected and tested on a weekly basis from sites at Hampton Harbor and the Isles of Shoals. PSP is quantified by a bioassay using the mouse unit (MU) as the unit of measurement. The MU is defined as the minimum amount of toxin required to cause the death of a mouse weighing 20 grams in 15 minutes when 1.0 ml of shellfish extract is injected intraperitoneally. The bioassay is the gold standard for PSP toxicity testing and has been modified by using purified saxitoxin as a reference standard and converting mouse units to micrograms of toxin. This assay can detect several different toxins that cause illness and is the only approved method for reopening closed shellfish beds.



The red tide of 2005 was the worst algal bloom of A. fundyense *since 1972 and caused the closure of mussel beds throughout New England.*[2]

For the past year the PHL has hosted UNH graduate student Lee Lee Chung, who is working toward her masters degree in analytical chemistry. Lee Lee's thesis involves the use of liquid chromatography/mass spectrometry (LC-MS) to measure toxins in mussel tissue. Using LC-MS, the scientist can separate and identify the different toxins. Her objectives are to compare LC-MS results with conventional mouse bioassay results, establish toxin profiles (amounts of specific toxins) for mussels from NH waters, and develop a qualitative and quantitative method to augment or eventually replace the mouse bioassay. The United States is among several countries that are working toward a mouse-free monitoring program for marine biotoxins.

References

1. "Image of a living *Alexandrium fundyense* cell." *National Oceanic and Atmospheric Administration, Northeast Regional Office*. Web. 2 Apr 2010. <http://www.nefsc.noaa.gov/press_release/2009/MediaAdv/MA0905/>.
2. "New England Red Tide Outbreak 2005." *Woods Hole Oceanographic Institution: Northeast PSP*. Web. 2 Apr 2010. <http://www.whoi.edu/page.do?pid=24003>.

NH PHL Educates the Public

The NH PHL takes advantage of many opportunities each year to educate the public on important health topics. On March 7, 2010 we attended the Franklin Sportsman Show in Franklin, NH, where some of the most popular topics discussed with hunters and fisherman were food safety, Lyme disease, and protection from arboviruses. On April 17, 2010 the NH PHL presented at Discover Wild NH Day, an event geared towards families. We had a great time teaching children to watch out for ticks and the possible symptoms of Lyme disease while playing our popular, homemade game, "Pin the Deer Tick on the Bulls-eye." We also had many great questions concerning rabies, paralytic shellfish poisoning, and the anthrax case! The NH PHL has also been invited to a couple of local school health fairs this year where we've been able to interact with children and teach them ways to prevent the spread of colds and the flu, to wear bug spray when outside to prevent mosquito bites, and to look out for those pesky ticks! The most common comment when looking at samples of engorged deer ticks: "That's so cooool! But so gross!!"

Lab Scientist Amanda Archambault teaches kindergarten students about Lyme disease while playing "Pin the Deer Tick on the Bull's-eye."

National Medical Laboratory Professionals Week 2010

Lab week is kind of like Christmas at the NH PHL. The air is a little lighter, everyone is in a better mood, and we all probably gain about five pounds by the end of it! This year lab week was held April 18-24 and the theme was *Laboratory Professionals Get Results*. We celebrated with educational games such as lab-related crossword puzzles and jumbles, a matching game with outbreak food items and symptomatic patients, and of course, lots of food ("Pizza, Popcorn, and an Autopsy" was definitely interesting!). We still managed to squeeze in the Emerging and Resurging Infectious Diseases continuing education program and the Laboratory Response Network conference call because lab week is about education as well!

Many of us work behind the scenes to "Get Results" and we hope you took the time to recognize the hard work you do and to educate others on what it means to be a lab professional.

Participants in the Decorate a Face Shield Contest show off their final products! Clockwise, back left: Brian Scherer, Jennifer Stearns, Joanne Pollock, Amanda Archambault, Sue Desrosiers, George Robinson, Hannah Doyle, and Wendy Lamothe.

Training Update

The NH PHL regularly registers for continuing education programs offered by the Association of Public Health Laboratories (APHL), the CDC, and the Clinical Laboratory Standards Institute (CLSI). As part of the lab training program, these webinars and conference calls are available free of charge to the staff at the NH PHL and to the lab's partners throughout the State. Parties interested in attending need only to contact Carol Laurin, Training Development Manager, at (603) 271-1383 to register and make arrangements for visiting the secured lab. Many programs offer continuing education credits, which can help you meet those certification requirements! The following is a list of programs scheduled through the end of June.

5/25/10	ENV series: Internal Audit Data Review - Organic Methods
6/1/10	Biomarkers of Sepsis: Sounding the Early Alarm
6/3/10	The Top 10: CLSI Guidance To Address Deficiencies
6/8/10	Emerging Diseases: Dengue Fever
6/17/10	Safety First! Protection from Laboratory-Acquired Infections
6/23/10	NH LRN Meeting
6/24/10	Packaging and shipping course

Staff Updates

Retired
Jill Buelte, Administrative Secretary

Lab Director Dr. Christine Bean (left) with Jill Buelte (right) at Jill's retirement party.

Jill Buelte, Administrative Secretary to the lab director, retired January 1, 2010 after working eighteen years for the State of New Hampshire. Fifteen of those years were spent at the NH PHL. Prior to coming to the NH PHL, Jill worked as a secretary for the Radiological Health Program.

Besides her many duties as Administrative Secretary, Jill also served on a number of committees. She was always ready to volunteer and kept minutes for a variety of committees and projects, including the laboratory information management system (LIMS) meetings as well as NH PHL staff meetings. Jill also contributed to the Newsletter Committee and was instrumental in entering and formatting submissions into the Microsoft Publisher program. Let's hope this issue of the newsletter lives up to her standards.

Retired
Rita Davis, Microbiologist III

At the end of September 2009, after twenty-four years of employment, Rita Davis retired from the Tuberculosis (TB) Unit of the NH PHL. She began her career with the NH PHL working part-time in the Childhood Lead Lab of the Inorganic Chemistry Unit. She then obtained a full-time position in the Food Safety Microbiology Unit and later moved, for a brief stint, to the Toxicology Unit. Her last position was in the TB Unit where she worked until her retirement. In fact, she used to say the only unit she hadn't worked in was Virology. And, who knows, maybe if she had stayed longer she would have transferred over there, too! Rita was very conscientious of the work she did, in whichever department she worked, and she will be missed!

Promoted
Jennifer Stearns, Microbiologist II, Virology and Special Testing Unit

In mid-January, Jennifer Stearns was promoted to Microbiologist II in the Virology Unit of the NH PHL. Jennifer has a Bachelor of Science degree in biochemistry and has been working in Virology for more than eight years. Her new duties will include oversight of quality assurance, quality improvement, and inventory for virology culture; equipment and assay troubleshooting; and improvement of turnaround time. Jennifer has been closely involved with the NH PHL's search for a new laboratory information management system (LIMS) and continues to facilitate upgrades and adaptations to the current system.

Staff Spotlight

Sally Hartman is the Chemistry Program Manager for the NH PHL. She began working for the lab in 1986 as a Lab Scientist II under a grant from the National Highway Transportation Safety Agency. From 1989 to 1999, Sally was the unit supervisor of the new Toxicology Unit, which went live in 1991. In 1999 she became the Method Development Scientific Expert. Here she continued to develop drug analyses in blood, which occasionally led to testifying in trials. After the toxicology program was transferred to the NH Department of Safety in 2003, Sally spent two years working on biomonitoring and organic chemistry method development before she became the Chemistry Program Manager and Chemical Terrorism Coordinator for the lab in late 2005. Some of the thrills of her current position have been being awarded the FDA Food Emergency Response Network Cooperative Agreement grant, presenting at the APHL conference in Anchorage, Alaska, and responding to public health emergencies (most recently, the VYNPS tritium leak).

Before coming to the NH PHL, Sally was an associate medicinal chemist for five years at Smith, Kline, and French Laboratories (now Smith Kline Beecham), followed by five years at Fels Research Institute. During part of her time at those two jobs, Sally completed her masters degree in chemistry at Temple University.

Interviewer:

Why did you choose to work in public health?

Sally Hartman, Chemistry Program Manager:

I don't think I chose public health, I believe public health chose me. Although the science was interesting and there was the challenge of getting the job done amid a continuing array of bureaucratic barriers, the most fun of all was the variety of the job—the interesting toxicology cases, contaminated product analyses, helping to develop several programs (toxicology, biomonitoring, and chemical terrorism), seeing some of those programs blossom, the interesting court cases, participating in activities and planning at the department level, yes—the bureaucratic challenges, and, saving the best for last, the interesting and fun people to work with.

Answers to last edition's crossword puzzle:

Across:
1. Liquid media used to promote the growth of *M. tuberculosis:* **MGIT**
3. A DNA fingerprint of organisms: **PFGE**
5. For example: EEE, WNV or SLE: **arbovirus**
6. Recent NH PHL retiree: **Sue MacRae**
8. An unwelcome dinner companion while on a cruise: **norovirus**
9. Recent pandemic scare: **swine flu**
10. Paralytic shellfish pisoning: **red tide**
12. A toxic chemical recently found in pet food: **melamine**
14. A proficiency program provider: **CAP**
16. Federal agency for natural disasters and bioterrorism events: **Homeland Security**
17. An organism recently found in peanut butter: **Salmonella**

Down:
1. Hungry, blood sucking critter: **mosquito**
2. Limited space and unlimited clutter may be issues for this: **safety**
4. The smallest amount your method can measure: **limit of detection**
7. An acronym of drugs used to treat *M. tuberculosis*: **SIRE**
10. Disease of Old Yeller and Cujo: **rabies**
11. A viral infection of horses and humans: **EEE**
13. Carrier of the causative agent of Lyme disease: **deer tick**
15. Tracking the amount of a specific chemical in the environment: **biomonitoring**

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) 271-4660 to reach the lab directly or email Amanda Archambault at amanda.e.archambault@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, Amanda Archambault, Susanne Desrosiers, Jill Power, and Peggy Sweeney