



# DELAWARE LABORATOR

Volume 31, Issue 3

## ANATOMY OF A FOODBORNE OUTBREAK

Sue Shore, Epidemiologist

One phone call to the Epidemiology Section on December 4, 2006 set into motion a two week process of investigating a foodborne outbreak. A previously interviewed *E. coli* case called the office to report that her daughter had eaten at the same Taco Bell restaurant in New Jersey that had been implicated in a possible *E. coli* 0157:H7 foodborne outbreak. She had not remembered eating there on the original interview, but after seeing the news report on December 3, she recalled the visit.

*E. coli* 0157:H7 is one of many mandatory reportable conditions in Delaware. (<http://www.dhss.delaware.gov/dhss/dph/dpc/rptdisease.html>) Every day the Epidemiology Section reviews these reports, creates new cases and investigates each one. Through this surveillance process we can detect possible trends or clusters and investigate the possibility of an outbreak. At the same time, the DPH Health Systems Protection (HSP) Section receives calls from patrons who believe they may have become ill after eating at a restaurant or social function. These calls are screened by HSP and sent to the Foodborne Epidemiologist for possible follow up. This partnership helps to identify potential outbreaks quickly and facilitates a rapid response.

After the first case called to report eating at the Taco Bell in New Jersey, Epidemiology interviewed her again, asking more specific questions about the exact location of the Taco Bell, what was eaten, when she was there and when she became ill. This information was shared with the New Jersey Department of Health since she ate at a restaurant in that state. Delaware began to participate in daily conference calls with all states involved in the outbreak including Delaware, New Jersey, New York, and Pennsylvania. Delaware was officially a part of the Multi-State *E. coli* 0157 /Taco Bell Outbreak.

All *E. coli* 0157 isolates from Delaware residents are required to be sent to the Public Health Laboratory for confirmatory serotyping and Pulse Field Gel Electrophoresis (PFGE). PFGE is a DNA "fingerprint" of an organism and results are entered into the National PulseNet database at CDC for comparison with other isolates to track possible foodborne related outbreaks. The first isolate had already been confirmed as *E. coli* 0157:H7 and the PFGE testing was in progress when Epidemiology received the call on December 4. The Environmental and Molecular Microbiology (EMM) laboratory of DPHL finished the PFGE and sent it to CDC. Delaware was the first state to send PFGE results from this outbreak. As more results

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### Special Point of Interest

Front Page Article:  
Anatomy of a Foodborne Outbreak

## CHEMICAL TERRORISM UPDATE

*Tara M. Lydick, Chemical Terrorism Coordinator*

DPHL continues to advance its capabilities for chemical terrorism preparedness and response. DPHL is looking to expand contacts and working relationships beginning with a series of Laboratory Preparedness Assessment Surveys. This year's survey was provided at the November 2006 LPAC meeting and is available electronically for all hospital, clinic, environmental, academic, commercial, and other State laboratories. If you did not receive the survey, please contact DPHL at (302) 223-1520.

The CT lab has recently validated two new clinical methods by ICP/MS (Inductively Coupled Plasma Mass Spectrometer): Arsenic and Selenium in Urine, and Blood Metals [Cadmium, Mercury, and Lead]. These methods are available for routine biomonitoring, suspected chemical exposure, or potential chemical terrorism events, providing sub parts per billion level quantitation. These methods upgrade DPHL's Blood Lead in children evaluation from graphite furnace atomic absorption spectrometry. ICP/MS allows simultaneous monitoring of multiple analytes without a significant increase in analysis time, while providing a time and cost savings. Beginning January 2007, DPHL will offer trace element analysis by ICP/MS of 14 analytes in urine (Arsenic, Barium, Beryllium, Cadmium, Cobalt, Cesium, Molybdenum, Selenium, Lead, Platinum, Antimony, Thallium, Uranium, and Tungsten) and 3 analytes in blood (Lead, Mercury, and Cadmium). Contact DPHL for specimen cost and requirements.

CT successfully participated in the first "pop" or random CDC proficiency challenge in November 2006. Upon receipt of the 10 cyanide specimens, CT had 24 hours to receive, document, process,

analyze, and electronically report the specimen results. CT staff were tested in their competency to accurately measure and report the data. DPHL processes and procedures were also evaluated for all stages of specimen handling, including facility security, laboratory surge materials levels, and personnel scheduling. In addition, the LRN-C routine proficiency challenge response time has decreased from 1 calendar week to 3 working days. While the challenge was successful, the rapid turnaround time emphasized the need for additional properly cross-trained staff during a potential incident.

DPHL has recently installed a Gilson SPE215, an automated high throughput solid phase extraction (SPE) and sample purification system. This system will be used to prepare samples for three upcoming methods and can reduce sample preparation time. Combined with the liquid concentrator system, CT staff will be able to prepare a variety of sample types and volumes with good reproducibility and higher throughput for organic analyses.

DPHL has also received several pieces of triage equipment to support the all-hazards receipt approach. This process is used to rule out potential explosive, radiological, nuclear, and chemical hazards of unknown or uncharacterized environmental materials prior to biological analysis. DPHL will continue the implementation process and training of staff and sample submission personnel.

In order to meet the new Level 2 methodology and analyte requirements under the Public Health Emergency Preparedness Cooperative Agreement, DPHL is in the process of purchasing a liquid

chromatograph tandem mass spectrometer (LC/MS/MS). Anticipated instrument purchase is mid-February and with installation by mid-March. CT staff will begin vendor training in April 2007 and CDC training for the Nerve Agent Metabolites in Urine method in summer 2007. Once the training is complete, staff has 60 days to complete and submit the method validation data. This instrument has versatility to be used for other analyses, including supporting the unknown specimen analysis, drinking water and waste stream analysis, as well as additional chemical terrorism methods.

DPHL has begun preparations for a new organic method: Volatile Organic Compounds (VOCs) in Blood by gas chromatograph mass spectrometer (GC/MS). This method utilizes existing instrumentation with an addition: a SPME (Solid Phase Micro Extraction) fiber on the Gerstel PrepStation. This system, combined with the Gilson SPE215, will allow trace level analysis of volatile contaminants in potentially exposed persons. CT staff anticipates requesting a second Gerstel PrepStation for the second GC/MS system for the Organopesticide Screen in Urine and to support the drinking water pesticide screen. The new VOC method will provide trace level analysis of over 38 different analytes currently requiring meticulous sample preparation and analysis. CDC method training begins February 2007 and DPHL anticipates full method validation by June 2007. Beginning in September 2007, DPHL plans to offer VOC in Urine by GC/MS analysis for potentially exposed persons or for routine biomonitoring. Contact DPHL for specimen cost and requirements.

CDC provided Clinical CT Specimen Protocol changes in October 2006. The

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## ANATOMY OF A FOODBORNE OUTBREAK

*continued*

came in, CDC was able to determine the specific PFGE pattern of the *E. coli* 0157 associated with the Taco Bell outbreak. With this knowledge, the EMM lab alerted the Epidemiology Section of another isolate the lab had received that matched the pattern. It was Epidemiology's job to determine if Delaware had another confirmed case.

Epidemiology pulled the information from the earlier interview of this newly identified PFGE match and checked for any reference to Taco Bell. There was none, so the person was called again to confirm this information. When questioned, he also remembered that he had eaten at a Taco Bell and this time the restaurant was in Delaware. We had our second confirmed case in Delaware.

With all the news reports, public inquiries began to come in to both Epidemiology and HSP. As new cases were reported, Epidemiology would determine if each one could be classified as a suspect case, per case definitions for the outbreak. If so, a complete interview was performed and HSP was notified of the implicated Taco Bell restaurant for follow up. The Environmental Health Specialists had already inspected all 15 Taco Bell restaurants in the state on December 5 as a precaution.

In addition, CDC sent the following recommended interventions for Taco Bell restaurants:

- 1) The restaurant will need to be cleaned and sanitized
- 2) Current foods in restaurants will need to be discarded and resupplied
- 3) All food workers must have stool samples cultured for

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### Division of Public Health Laboratory

30 Sunnyside Road  
Smyrna, DE 19977  
(302) 223-1520

**Built:** 1990

**Hours:** **Business Hours:** 8:00 a.m. - 4:30 p.m.

**Purpose:** The Division of Public Health Laboratory currently offers consultation and laboratory services to state agencies, Delaware Health and Social Services (DHSS) and Division of Public Health (DPH) Programs including:

- HIV Surveillance and Prevention
- Immunization Program
- Lead Programs
- Epidemiology
- Newborn Screening Program
- STD Prevention Program
- TB Elimination Program
- Water Supervision Program
- Preparedness

## DPHL STAYS ON THE CUTTING EDGE OF TECHNOLOGY

*Nancy Valeski, Emily Outten, Anna Linz, Susan Dee, Microbiologists, Rebekah Parsons, Lab Manager, Patricia Scott, Newborn Screening Manager*

The Delaware Public Health Lab has been fortunate in the ability to grow exponentially and concurrently with the world of technology in science. A Vitek 2, MagNA Pure Compact, Beckman CEQ 8000 Sequencer, Bio-Tek ELx-800 Plate Reader, and a Bio Rad Bio-Plex System are among new testing platforms enhancing and expanding our existing capabilities. The staff consistently works hard to keep educated and current regarding all new methods and equipment that will improve the efficiency, accuracy and precision of testing.

### Vitek 2 Compact

The Microbiology Section recently purchased an automated bacterial ID and susceptibility test system, Vitek 2 Compact. The Vitek 2 is the updated model of the Vitek (bioMerieux) that was previously in operation. The Vitek uses cards that are approximately the size of a thick credit card. Each card has 60 small wells, each filled with dried reagent. A standardized bacterial suspension is pulled into these wells using a vacuum so that each well is its own small reaction tube. Designated identification cards contain many of the standard biochemicals that have been used for years. In addition, susceptibility cards are available that, once inoculated, contain dilutions of various antibiotics. The company offers a wide variety of antibiotic combinations to accommodate different types of bacteria. Once the cards are inoculated, they are incubated and read hourly by a photometer. As the biochemicals in the ID cards change, the computer is able to compare the readings to a database and identify the isolate. In the susceptibility cards, the instrument is detecting optical density. The results can be reported

as MICs (minimal inhibitory concentrations) or as S (sensitive), I (intermediate) or R (resistant). This information is reported to the clinician in order to make decisions on treatment for their patients with bacterial infections.

### MagNA Pure Compact

The MagNA Pure Compact is an automated workstation designed to extract nucleic acids from a variety of matrices. It is able to extract 8 specimens per run with minimal manipulation of specimens making this an ideal platform for potentially hazardous specimens requiring a Biosafety Level 3 (BSL-3) environment. Kits for both DNA (for bacteria and DNA viruses) and RNA (for RNA viruses like norovirus and influenza) are available which include all of the reagents needed in the extraction process. The Compact provides the capability to extract nucleic acids for a variety of organisms that are included on the BT (bioterrorism) panel. Instead of performing separate extractions for each organism, we will be able to test for a panel of organisms with a single extraction run and will be able to complete it in less than an hour. This will give us the capability to respond to a BT event with greater efficiency. The MagNA Pure is housed in the new BSL-3 section of the laboratory and has been evaluated using positive and negative controls for Influenza and Adenovirus. The MagNA Pure was also used in tandem with manual extraction methods during participation in a *Yersinia pestis* proficiency test provided by the CDC and functioned as intended in the corroboration of results.

### Beckman CEQ Sequencer

The DPHL received a Beckman CEQ 8000 Sequencer in early 2005. Due to its complex nature, we are just starting to delve into the wonderful world of DNA sequencing. The Sequencer is currently located in the Environmental & Molecular Microbiology (EMM) Section and use of it has been gaining momentum.

DNA sequencing provides the precise nucleotide order of a given DNA fragment and starts with the amplification of the fragment in question using a Polymerase Chain Reaction (PCR). Once a PCR is completed, a cycle sequencing reaction is performed on the CEQ. In this step, a modified base pair is added to each piece of DNA. When each modified base is added, the chain is stopped, or terminated. Furthermore, a reaction is performed in which a fluorescent dye containing one of the four nitrogenous base tags is added to the amplified DNA. Thus, every piece of DNA that ends with a T is given a dye like red, an A might end in green and so forth.

The terminated segments then pass through the capillary in the sequencer. The smaller pieces will migrate through the capillary quickly, while larger segments will pass through more slowly. A laser in the sequencer reads the fluorescent tag on each segment and gives a raw sequence. Final analysis can involve comparing the sequence to sequencing databases and editing.

The EMM lab recently embarked on a collaborative project with the CDC to compare sequencing methods to Pulsed Field Gel Electrophoresis methods for

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## DPHL STAYS ON THE CUTTING EDGE OF TECHNOLOGY *continued*

*Salmonella serovar typhimurium*. We are using the MLVA (multi locus variable number of tandem repeats analysis) method. Within DNA sequences, there are tandem repeats amongst the genome. MLVA differentiates the strains by analyzing the expansion and contraction of the tandem repeats on the genome. Since the gaps between repeats vary at several loci, it is a good technique for discriminating among strains of the same species.

This is all very new to the EMM lab, and we hope to expand our sequencing capabilities to include other organisms very soon. Although very costly, sequencing is faster and more discriminatory than PFGE. We look forward to implementing Norovirus sequencing in the near future as well.

### Bio Rad Bio-Plex System

The Bio Rad Bio-Plex System is a compact, highly versatile platform capable of running a wide range of bead-based assays, including the newly adapted Microsphere-based Immunologic Assay (MIA) test. The MIA has been a great asset to the DPH Laboratory. Implemented at the beginning of 2006, the MIA uses specific antibody labeled fluorescent microsphere beads to form an antigen-antibody complex. The beads are read by two lasers in a modified flow cytometer. The bead sets are classified by a red laser while simultaneously a green laser quantifies the surface fluorescence which represents a reaction. The software produces a single result and orders other testing if necessary for confirmation. Currently, the MIA is used for West Nile Virus and St. Louis Encephalitis testing on human serum or cerebrospinal fluid (CSF).

Due to the coupling of bead sets, this multiplex assay allows for several tests to be performed on a single sample at one time with rapid results. The MIA takes a minimum of two hours for one specimen and up to four and a half hours for an entire plate. In the future DPHL plans to expand the usage of MIA by adding an assay for the detection of multiple bioterrorism agents. A multiple agent kit obtained through the Laboratory Response Network will provide the ability to detect *Bacillus anthracis*, *Yersinia pestis*, *Francisella tularensis*, Ricin toxin, or *Staphylococcus enterotoxin B* in a single sample. The Bio-Plex System is housed in the new Bio-Safety Level 3 section of the laboratory.

### Bio-Tek ELx-800 Plate Reader

The Virology Section has obtained a Bio-Tek ELx800 Plate Reader along with a Bio-Tek ELx50 Plate Washer for running an assay used to detect botulinum toxins. The DIG-ELISA kit detects botulinum toxins A, B, E and F. It uses Digoxigenin-labeled antitoxin IgG's and anti-digoxigenin horse radish peroxidase conjugate. This kit is a modification of the amplified-ELISA and allows for the in vitro detection of botulinum toxin in culture, food and environmental specimens. The test takes approximately 1 day to complete. It is strongly recommended that all positive results be confirmed by using the mouse bioassay. Currently, we are in the process of establishing and validating this testing.

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## CHEMICAL TERRORISM UPDATE

*continued*

majority of the changes deal with the physical packaging of the specimens. These briefs were made available at the LPAC meeting and are available on the DPHL webpage and electronically by request. Updated training CDs will be available early February 2007 and will be posted on the DETrain.com website. Please contact Craig Koska ([Craig.Koska@state.de.us](mailto:Craig.Koska@state.de.us)) for further information. These changes and the new grant guidance require mandatory exercises for all Sentinel and Level 3 facilities and groups, beginning late February 2007. These exercises cover proper collection, packaging, shipping, documentation, and notification for potential terrorism specimens. Announced exercises continue through June 2007 and unannounced exercises begin in July 2007. The exercise criteria are available for facilities prior to participating. DPHL has tested its ability to properly conform to these protocols and successfully completed the CDC Specimen Collection Packaging and Shipping (SCPas) Exercise in July 2006 and coordinated a region SCPas exercise with Maryland, New Jersey, and Pennsylvania public health laboratories. These exercises will continue annually to ensure DPHL's compliance.

For more information about DPHL's or laboratory roles in responding to chemical terrorism contact Tara Lydick at (302) 223-1520, or send an email to [Tara.Lydick@state.de.us](mailto:Tara.Lydick@state.de.us).

## PREPAREDNESS UPDATE

*Marion Fowler, Microbiologist, Tara M. Lydick, Chemical Terrorism Coordinator*

The Laboratory Preparedness Advisory Committee held its semiannual meeting on November 2, 2006. A new format was implemented at this meeting. From 9:00am to noon, Biological Terrorism and Clinical Laboratory discussions were held. From 1:00pm – 3:00pm, Chemical Terrorism and Environmental Laboratory discussions were held. Members of the committee were able to attend both parts of the meeting or only their specific area of interest.

Operation Diamond Defense, a small-pox exercise that took place in July of 2006, was discussed and declared successful. Many thanks were given to the staff of Bayhealth, Beebe and Nanticoke Hospitals who took the time from their busy schedules to participate in the exercise. The need for fine tuning of communications before the next exercise or event was the main area of concern during the overall exercise evaluation. With each exercise, the State of Delaware becomes better prepared to deal effectively with a true event.

Christiana Pleasanton, Deputy Director, reviewed the new security updates to the Biological Preparedness Laboratory (BPL) and the DPHL facility. Security cameras and an alarm system have been installed throughout the building.

Rebekah Parsons, Manager of Environmental and Molecular Microbiology (EMM) and Acting Manager of Virology, discussed the influenza testing algorithm for this year - PCR screening is done on all specimens, followed by culture of positives. Handouts with flow charts were given to all participants. Detection of botulinum toxins A, B, E and F using the DIG-ELISA kit is now available at DPHL. This method is for the presumptive “in vitro” detection of

botulinum toxin. All positive ELISA test results must be confirmed by a reference laboratory or CDC using the mouse bioassay.

Kathy Gray, LIMS Administrator, gave an update on the Laboratory Information Management System (LIMS). Over the coming year LIMS access will be given to all of Delaware’s hospitals. Hospitals will then be able to submit sample information through LIMS and retrieve reports electronically.

Debra Rutledge, Manager of Clinical Microbiology and BT Coordinator, gave an update and handouts on the Delaware Regulations for disease reporting and submission of bacterial isolates which were enacted earlier this year. Her discussion also covered submitting isolates through the National Antimicrobial Resistance Monitoring System (NARMS), shigatoxin testing and the Epidemiology and Laboratory Capacity (ELC) grant. APHL certificates for Laboratory Response Network (LRN) Sentinel Labs were given to all hospitals that requested a certificate. Marion Fowler, BT Microbiologist, discussed the upcoming Sentinel Lab BT Workshop to be held on March 22, 2007 at the DPHL. Since this is a wet lab, hands-on workshop with limited space, each lab may send one person to be trained. After completion of this workshop, sentinel laboratories will receive an advanced sentinel laboratory certificate for their hospital.

In house BT training for DPHL employees was held during August of 2006. The training included a review of general and BSL3 safety procedures, protection of the physical security of the work place, cyberspace security, how to choose and wear a respirator, and review

of the use of biosafety cabinets. A hands-on exercise regarding the proper procedure for donning and doffing of personal protective equipment was also conducted.

The afternoon session began with Captain Laura Goode, 31<sup>st</sup> Civil Support Team (CST) Science Officer, providing a brief overview of the CST’s mission and capabilities and a tour of the CST Mobile Laboratory. First responder environmental and chemical terrorism sample collection guidelines, evaluation, and refresher training were also discussed. Ways to improve, update, and standardize the collection kits were also addressed. The group continued to evaluate various all-hazards receipt protocols and analysis methods and instrumentation.

Equipment surveys have been developed for the various teams, agencies, and laboratories. Any response group, facility, or agency, which wishes to complete a survey but has not yet done, so should contact Tara Lydick ([Tara.Lydick@state.de.us](mailto:Tara.Lydick@state.de.us)) for further information prior to the end of January 2007. Quarterly field equipment proficiency evaluations were also discussed and are planned to start in January 2007. The group hopes to strengthen environmental, radiological, and chemical responses between first responders, laboratories, and agency groups.

The next meeting of the LPAC committee is scheduled for May 2007. Any group, organization, or individual expressing interest in attending or participating or receiving any materials associated with LPAC should contact Tara Lydick at (302) 223-1520 or by email ([Tara.Lydick@state.de.us](mailto:Tara.Lydick@state.de.us))

## LIMS UPDATE

*Kathy Gray, System Administrator*

The Laboratory Information Management System (LIMS) is fully operational in all designated departments of the lab which include Microbiology, Virology, Environmental Molecular Microbiology, and Environmental Chemistry. LIMS provides remote entry of specimen submission information, electronic real-time access to results, easier specimen tracking, and quality control documentation. Reports available thru this system include patient preliminary reports, patient final reports, water testing reports, QA reports, summary and ad hoc reports for monitoring lab activity and testing activity. This information helps the laboratory with planning and budgeting, as well as creating a streamlined



process for specimen testing.

Those outside of the lab that currently have access to the system include all of the state clinic facilities and the environmental health units that submit water testing samples.

LIMS allows patient samples to be logged at the collection site (i.e. clinics and health centers). The environmental health units log water samples dropped off by private citizens. These locations can now check on the progress of testing and receive results electronically. They can also print summary reports, statistical reports, and their patient reports. We also have standard reports

and queries that can be run to help track specimens.

The next phase is to move into the community by giving access to non-state facilities and services. Training sessions are now being planned for facilities including school based wellness centers, Planned Parenthood, university student health centers, and community based health centers. Initial training dates are being scheduled in January.

## DPHL STAYS ON THE CUTTING EDGE OF TECHNOLOGY *continued*

### Victor 2D Fluorometer

The Newborn Screening section has acquired a Victor2D, time-resolved fluorometer, from PerkinElmer Life Sciences for performing Immunoreactive Trypsin (IRT) testing, which is used in the diagnosis of Cystic Fibrosis in all newborns born in Delaware. IRT is elevated in newborns with Cystic Fibrosis and remains elevated for up to two months. The complete system includes the Victor fluorometer, printer, computer, Multicalc software, DELFIA Washer-Diskremover, automatic shaker, and a Wallac DBS automated puncher.



*Victor2D Fluorometer*

## New Employees at DPHL

**Megan Cohen** started working in the Environmental and Molecular Microbiology section of DPHL in mid-November. She began attending University of Delaware in 2000. During her time at the University, she worked for a year on a collaborative project with Delaware Natural Resources and Environmental Control and the University of Delaware under Dr. Jack Gingrich studying West Nile Virus patterns within the state. She also spent her final year at the college working on a study involving the avian leukosis virus, a complex of diseases affecting poultry. After graduating from the University of Delaware in 2004 with a Bachelors Degree in Biology, Megan Cohen began work with a local Agriculture company in Research and Development mainly performing Microbiologist duties.

The lab extends congratulations to **Michele Young** on her promotion to an Administrative Specialist I. Her new duties include supply ordering, creating purchase orders and payment vouchers, and vendor relations. Michele joined the lab in June 2004 as an Operations Support Specialist, where her primary duties included receiving lab samples, data entry, and results distribution. Michele has a BA in Liberal Arts and will have a diploma in Gerontology at the end of next semester.

**Cheryl Jones** was promoted to Senior Accountant August 7, 2006. Cheryl had previously been an Administrative Specialist III and has been working at the DPHL since 2001. We congratulate Cheryl on her well deserved promotion. Cheryl consistently strives to maintain

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## New Employees at DPHL

excellent customer service for her co-workers, vendors and laboratory clients. She has always assured that the laboratory sections have the reagents and supplies that they require to perform testing. Cheryl has restructured the accounts payable and budget tracking systems for the laboratory and has taken it upon herself to develop and present Microsoft Outlook training for the laboratory employees. Cheryl also created a computerized inventory system for the laboratory. Cheryl's dedication to her past and present positions, to the Division of Public Health, to the State of Delaware and to the citizens are noteworthy and a testament to her desire to contribute and make a difference.



## ANATOMY OF A FOODBORNE OUTBREAK

*continued*

*E. coli* O157 and any symptomatic workers or culture-positive workers must not work until documented culture-negative

- 4) Food workers will need to have enhanced training in proper food handling and hygiene.

On December 7, Delaware HSP required any restaurant with an associated case to implement all 4 interventions, and if the restaurant had no case associated with it, only interventions 1 and 2 were required.

All Taco Bell locations in Delaware voluntarily closed on December 7 to implement these recommendations. Restaurants were re-inspected beginning December 8 to confirm that they had implemented these interventions and, if so, they were allowed to reopen.

Since Delaware had two restaurants with associated suspect cases requiring all four of the recommendations to be followed, the Public Health Laboratory received 45 employee stool samples. Northern Health Services (NHS), also part of the Division of Public Health, was responsible for the collection of these samples and managing the employee information. The DPHL Microbiology lab performed Shigatoxin EIA testing and cultures to rule out *E. coli* O157. Results were available 24-48 hours from receipt in the lab. The rapid

turnaround time helped to get these employees back to work and restaurants reopened as quickly as possible. The lab also performed Shigatoxin testing and culture on samples submitted on suspect cases. With the results of this testing, Epidemiology was able to quickly update/change case status and submit the information to CDC in a timely manner. Food samples from one of the restaurants were also submitted to the laboratory and tested using Food Emergency Response Network (FERN) real-time PCR protocols. The EMM lab tested lettuce, tomato, white onions, cilantro, cheese and salsa; all were negative for *E. coli*.

Delaware was very closely involved in this multi-state outbreak, and one of only four states with a restaurant associated with a confirmed case. What was evident from the beginning was the great cooperation and teamwork between Epidemiology, HSP and the Laboratory, as well as NHS. Furthermore, the Office of Health and Risk Communications (OHRC) was an important part of the team. Due to high media interest, OHRC held a press conference on December 7. OHRC conferred with Epidemiology and HSP often and sent press releases once or twice a day, updating the media continually. This cooperation between all the sections involved is vital to any successful foodborne outbreak investigation and Delaware has proven we have a hardworking, dedicated team.

Jaime "Gus" Rivera, MD, FAACP  
Director  
Delaware's Division of Public Health

Jane P. Getchell, DrPH  
Director  
Delaware Public Health Laboratory

Christina Pleasanton, MS  
Deputy Director  
Delaware Public Health Laboratory

If you have questions regarding these articles or would like to receive a hard copy of this newsletter, contact the Delaware Public Health Laboratory at 302.223.1520.



"To Protect and Enhance the Health  
of the People of Delaware"