



DELAWARE LABORATOR



Fall

2011

DPH LAB IDENTIFIES FIRST CASE OF TULAREMIA SINCE 2003



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On Oct. 6, the Delaware Public Health Laboratory (DPHL) confirmed Delaware’s first case of tularemia since 2003, in a 45-year-old Kent County man. The man was hospitalized and responded to treatment.

Although Delaware has not reported a case of tularemia in eight years, each year an estimated 125 to 150 cases are reported nationwide.

Tularemia is associated with tick bites and is not spread person to person. Domestic cats are very susceptible to tularemia and have been known to transmit the bacteria to humans.

Humans can become infected by handling infected animal tissue when hunting or skinning infected rabbits, muskrats and other rodents, or by inhaling dust or aerosols contaminated with the bacteria, such as during farming or landscaping activities, especially when tractors or mowers run over an infected animal or carcass.

The disease can also be transmitted by drinking untreated water contaminated with the bacteria.

Symptoms may include: sudden fever, chills, headaches, diarrhea, muscle aches, joint pain, dry cough and difficulty breathing. Other symptoms can include ulcers on the skin or in the mouth, swollen and painful lymph glands, swollen and painful eyes and a sore throat.

Anyone exposed to tularemia should be treated as soon as possible as the disease can be fatal. Because the disease is difficult to diagnose, it is important to share with your health care provider any likely exposures such as tick and deer fly bites, or contact with sick or dead animals. Blood tests and cultures can help confirm the diagnosis. Delaware laboratories and health-care providers are required to report any diagnosed case of tularemia to the Division of Public Health’s Bureau of Epidemiology.

“Preventing tick bites is the best way to protect yourself from tularemia,” said Dr. Karyl Rattay, Delaware Division of Public Health director. “Use insect repellent containing DEET on your skin, or treat clothing with repellent containing permethrin, to prevent insect bites.”

In addition, use care and wear gloves when handling sick or dead animals. Be sure to cook food thoroughly and that your water is from a safe source. Note any change in the behavior of your pets (especially rodents and rabbits), or livestock, and consult a veterinarian if they develop unusual symptoms.

For more information, see <http://www/cdc.gov/tularemia/faq/> or call DPH’s Bureau of Epidemiology at (888) 295-5156.

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LABORATORY PREPAREDNESS ADVISORY COMMITTEE

MARION FOWLER, MICROBIOLOGIST II

The Laboratory Preparedness Advisory Committee (LPAC) met at the Delaware Public Health Laboratory (DPHL) on September 29, 2011. Various external and internal partners were in attendance including Delaware Emergency Management (DEMA), Division of Natural Resources and Environmental Control (DNREC), University of Delaware, United States Department of Agriculture (USDA), Division of Public Health (DPH), Department of Corrections (DOC), and Delaware's hospital microbiology laboratory managers.

The meeting opened with a discussion of the influenza season, which began on October 3, 2011. Emily Outten, molecular virology lab manager, distributed the new algorithm for this season, instructions for the collection kit, and the letter to health care providers. Several important changes for the new flu season include an increase in acceptable specimen types for flu testing. (See Influenza Update on page 4 for the Centers for Disease Control's (CDC) acceptable culture sites.) DPHL collection kits will only have a nasopharyngeal swab included, and all other specimen types should be inoculated into viral transport media. Health care providers will now be limited to sending five specimens per day.

Rebecca Parsons, from OraSure (former manager at DPHL), spoke about OraSure's new rapid influenza test. New rapid flu tests are of particular interest to hospital laboratories as rapid flu tests have been less sensitive in the past. OraSure QuickFlu™ is the only rapid flu test capable of clinically detecting 2009 H1N1. A Copan flocced swab, which results in superior performance, is included in the kit and reagents are stored at room temperature. A simple 3-step procedure and flexible testing times minimize the impact on workflow, and provides highly accurate results. Please contact Rebecca Parsons for more information at rparsons@orasure.com. DPHL does not recommend or promote any particular rapid flu kit.

Marion Fowler, bioterrorism (BT) microbiologist discussed the second bi-annual College of American Pathologists Laboratory Preparedness Exercise Survey which was sent to DPHL and all of Delaware's sentinel laboratories at the beginning of September. All but one of the sentinel laboratories contacted DPHL for their "unable to rule-out" isolates within the acceptable time frame. Sentinel laboratories were then required to package and ship an uninoculated agar plate as if it were to be sent to CDC. Sentinel laboratories with unacceptable survey results or improper packaging and shipping will be contacted for further follow-up. A checklist was provided for sentinel laboratories to use when they are unable to rule-out a BT agent. This checklist will help the sentinel laboratories properly package the isolate and also provide safe transport of the isolate to DPHL. A second handout provided suggestions and tips for ruling-out gram-negative rods. The wet workshop for sentinel labs will be held in late spring of 2012 at DPHL. The morning session includes an overview of laboratory safety and BT organisms, guidelines, procedures, forms and requirements. The afternoon session involves working with actual plates and interpreting test results. This workshop, according to the sentinel laboratories, has been instrumental in their success in identifying and ruling out BT agents for referral to DPHL.

Tara Lydick, chemical terrorism (CT) coordinator presented on recent outreach activities. Packaging and shipping training has transitioned to the Delaware State Fire School as of Oct 2011. A refresher course is required every two years for all staff that ship infectious samples. Contact Jerry.Brennan@state.de.us for more information. Tara has been organizing a full scale exercise for November 8-10, 2011. "Operation Loose Package" is scheduled to be held at the Hares Corner US Postal Facility. One of the main objectives of this exercise is to respond to, decontaminate, and treat personnel during an activation of the

BioDetection System (BDS) at the postal facility. Other objectives include testing multi-laboratory receipt, triage, testing and referral, and ensuring communications and information is transferred between federal, state, and other partners.

Jillian Austin, DPH Office of Preparedness planner, spoke about the "Emergency Medical Services and Preparedness Section". The mission of the Office of Preparedness is to "develop, implement, and maintain a comprehensive program to prepare for, mitigate against, respond to, and to recover from public health threats and emergencies." Examples of previous public health threats which occurred in Delaware are hurricanes, H1N1 influenza, terrorist acts, including a large amount of letters and other samples tested for anthrax, and floods. They provide educational and out-reach programs to disseminate up-to-date information to the public and all state agencies and partners. For more information, please contact Betty Decker at 302-223-1720 or Betty.Decker@state.de.us.

Gary Richards, PhD, lead scientist at the USDA Agricultural Research Service, located at the Delaware State University, presented "Vibrios, Shewanella and Photobacterium: Opportunistic Marine Pathogens from the Delaware Bay". These marine pathogens can be difficult to isolate from seawater, fish and shellfish. Normal identification using automated methods and kits may misidentify the organism and the database may not contain information on the specific pathogen. Seawater and shellfish can contain a large background count of mixed bacteria and selecting colonies to pick for identification is time consuming. Knowledge of this group of opportunistic marine pathogens is essential to laboratories as shellfish are widely sold and consumed in the state. Oysters have the ability to concentrate organisms, therefore, uncooked or undercooked oysters could contain high levels of pathogenic organisms. Health care workers should consider Vibrio, Shewanella and Photobacterium species

LPAC Meeting cont'd

when dealing with patients with seafood-associated food poisoning, or wound infections connected to the marine environments.

Ruth Fournier MSN, RN, Delaware's Adult Viral Hepatitis Prevention coordinator (AVHPC) presented the findings of the "2010 Institute of Medicine (IOM) Report, on Viral Hepatitis Prevention and Control." The IOM findings were that chronic viral hepatitis is a serious public health problem in the U.S. and is poorly

understood by providers, the public and policy makers. This lack of awareness and knowledge results in missed opportunities for prevention. Also, there is inadequate investment in viral hepatitis services and care. Greater than 65% of persons infected with Hepatitis B Virus (HBV) or Hepatitis C Virus (HCV) are unaware of their infection status as compared to 21% of persons infected with HIV.

One of the goals of the LPAC meetings is to meet face-to-face and form relationships

with the many internal and external partners who may be involved with a public health emergency. Awareness of appropriate contacts and available services before an event will be beneficial and provide an organized response when a public health emergency does occur. Handouts and presentation from the meeting are located on the www.dhss.delaware.gov/dhss/dph/lab/labs.html

NEW HIV TESTING ALGORITHM

LINDA POPELS, LAB MANAGER I

The Delaware Public Health Laboratory (DPHL) started using the Bio-Rad Multispot HIV-1/HIV-2 Rapid Test for HIV testing October 17, 2011. This FDA approved rapid test can detect and differentiate HIV-1 and HIV-2 antibodies in human plasma and serum. The Multispot is more sensitive than the 'Gold Standard', the Western Blot, and can detect infection seven days earlier than the Western Blot.¹

The Multispot is an immunoconcentration method. Specimens are added to a filter membrane that contains microparticles coated with antigens that represent transmembrane proteins of HIV-1 and HIV-2. Positive specimens bind to the microparticles on the membrane. A conjugate is added that will bind to the human antibody-antigen complexes that are bound to the membrane. The membrane is washed and a

development reagent is added to detect positive specimens.

The new Clinical and Laboratory Standards Institute guideline entitled, 'Criteria for Laboratory Testing and Diagnosis of Human Immunodeficiency Virus Infection²' was approved in June 2011. We will be using Algorithm III, that is described in the guideline, which calls for two antibody immunoassays to be run in sequence. If both are reactive, the result is considered a presumptive positive with optional, not automatic, reflex for supplemental testing. The patient must receive additional testing, such as quantitative viral load, to corroborate the initial results.

Based on this new algorithm, DPHL will no longer routinely run Western Blots on positive specimens. We will run the Trinity

Uni-Gold™ Recombigen® HIV Rapid test for initial HIV screening. Positive specimens will be run using the Bio-Rad Multispot HIV-1/HIV-2 Rapid Test. If the patient does not return for treatment within four months, the Western Blot will be run to confirm the case by CDC case definition.

¹Owens et al. 2008. Alternative Algorithms for Human Immunodeficiency Virus Infection Diagnosis Using Tests that are Licensed in the United States. *J. Clinical Microbiology*, 46(5): 1588-1595.

²Rosenberg et al. 2011. Criteria for Laboratory Testing and Diagnosis of Human Immunodeficiency Virus Infection; Approved Guideline. *Clinical and Laboratory Standards Institute*, 31(13).

LIMS UPDATE

KATHY GRAY, LIMS ADMINISTRATOR

In March 2011 we began a major upgrade of the Laboratory Information Management System (LIMS). The upgrade went into production on July 25, 2011 and brought our LIMS current with the latest available software to meet the ever-changing needs of electronic information sharing. Not only are we now able to send electronic laboratory result messages in HL7 format to our local epidemiology department, but also to national entities such as the Centers for Disease Control (CDC).

General users have a new data entry process that requires a pre-printed barcode id for all samples and a 'flow-chart' process that guides the user to the correct test assignment based on specimen source and category of test. The patient demographics entry page is now a single page, rather than multiple, and LIMS now allows for the entry of more than one diagnosis code (ICD9). Users can now preview an 'unofficial' report before the final report is printed. Final reports are now

stored electronically in PDF format, which preserves the original print date.

Much of the change to the system occurred in background processes not readily visible to daily users, and includes functionalities not currently used by our lab. The foundation is there for future development of these capabilities as we need them, especially as our connection to other systems grows.

INFLUENZA UPDATE 2011—2012**EMILY OUTTEN, LAB MANAGER I**

In September of 2011, the CDC announced updates and changes to the real-time Reverse Transcriptase Polymerase Chain Reaction (rRT-PCR) for the detection and characterization of influenza. DPHL will be able to order reagents and kits through the “Influenza Reagent Resource,” or IRR as was done last year.

There will be no changes to the actual primers and probes, however, there will be some logistical changes to kit ordering. One harmonized positive control will be issued, there will be a separation between flu A and B screening and sub typing kits, and H5N1 primers and probes will be completely separate. On a federal level, this should lead to extensive cost savings, as public health labs received many H5N1 primers and probes last season that were never used. Moreover, DPHL faced a shortage of flu B primers and probes last year as flu A primers and probes

were issued in duplicate.

Of special note to reference labs are the increase in acceptable specimen types, and the ability to freeze specimens before submission. Acceptable specimen types include: nasopharyngeal swabs, nasal swabs, throat swabs, dual nasal/throat swabs, nasal aspirates, nasal washes, bronchial washes, bronchoalveolar lavages, tracheal aspirates, sputum, lung tissues, and cell culture material.

Specimens that are collected and not received within 72 hours at DPHL may now be frozen at -70°C . This may be especially beneficial in the case of Friday collections, as DPHL does not operate on the weekends. Please note that specimens greater than 72 hours old that are frozen at -20°C or refrigerated will still be accepted, however they will be considered for “research purposes only”.

The flu vaccine for the upcoming season remains unchanged. Recently, however, there have been cases of “swine origin influenza A H3N2” infections. Thus far there has been one case in Indiana, and three in Pennsylvania. In these cases, three patients had direct contact with swine, and 1 patient had indirect contact through a caregiver. These infections were extremely unique in that the Matrix, or M gene was acquired from the 2009 H1N1 pandemic, while the remaining 7 genes (including the surface neuraminidase (NA) and hemagglutinin (HA)) were similar to swine H3N2 viruses circulating in the US since 1998. A CDC MMWR article on the first two cases can be viewed in the September 2011 edition at www.cdc.gov/mmwr. DPHL will be well prepared and on the lookout for any potential swine origin H3N2 positives, and would appreciate our sentinel providers submitting any flu A specimens that may mention contact with swine.

EMPLOYEE NEWS

On August 1, 2011, Dr. Sergio Huerta, M.D. was appointed the CLIA Laboratory Director for the Delaware Department of Health and Social Services, Division of Public Health, Laboratory, in Smyrna, DE. Dr. Huerta is a medical doctor who specialized in clinical and surgical pathology at St. Barnabas Medical Center, in Livingston New Jersey, which is part of the New Jersey School of Medicine and Dentistry. Since 1995, he has also been the Laboratory Director for the Department of Natural Resources and Environmental Control (DNREC). This experience allows him to take a very comprehensive perspective over human and environmental health conditions and any associated risk factors within our state.

WELCOME TO THE LAB!

Tim Smith has accepted the position of laboratory certification and compliance specialist. Tim comes to the Delaware Public Health Laboratory from Energizer Personal Care / Playtex, where initially he supervised the Quality Services Laboratory. With the Playtex acquisition of Banana Boat® sun care brand in 1993, he took on responsibilities for compliance at external contract manufacturing sites, auditing and interfacing with companies in the U.S., Canada, and Australia on behalf of Playtex. Tim has a BS in Chemistry from Delaware State University, and prior to Playtex Tim managed a drug testing facility that also performed veterinary clinical testing. Tim served in the military as an Air Force medic, spending approximately 3 of his 4 years working in the maternity ward at Dover Air Force Base 1607th Hospital. As a medic he assisted with deliveries and spent considerable time feeding newborns at their 2 a.m. feeding. Tim is married with one son and is extremely happy to be now working for the state that he and his wife adopted so many years ago.



MORE EMPLOYEE NEWS



Pat Selg was promoted to Administrative Specialist III at the Delaware Public Health Laboratory (DPHL) on August 15, 2011. She received her promotion after serving as the Lab's Operations Support Specialist since 2007. Pat enthusiastically takes on all tasks and projects at DPHL and serves as assistant to our LIMS Administrator as well as assisting our senior accountant with all financial related duties. She has exceptional computer skills and often assists other staff in solving their software problems. Outside of DPHL, Pat has numerous hobbies, such as ceramics and has created many wonderful pieces for family, friends and coworkers, especially Elvis and Priscilla pig banks. She and her husband are officers in the Del-Rods car club and participate in many charitable functions throughout the year. DPHL is proud of Pat's accomplishments and encourage her continued success.

CONGRATS to Pat Selg & William Pennington



William Pennington, DPHL courier, recently received the DPH Employee of the Quarter award for July-September 2011. William is the main contact to represent the interests of both the laboratory and the providers throughout central Delaware. He has been instrumental in making adjustments to the route, accommodating hours of operation to ensure specimens are picked up and received at the laboratory in a timely fashion. No stop, or return to a stop, is out of the way for the providers William serves. To him, we are all family. He promotes a positive attitude at all times while performing his duties. He is always pitching in on projects and changes his schedule to help with upcoming events. William works well with fellow employees, and has excellent customer service skills. He is a tremendous asset to the DPHL. Betsy Voss, Newborn Screening (NBS)

health program coordinator, noted that while meeting with Christiana Hospital nursing and lab staff regarding newborn screening issues and concerns, it was brought up that William provides exceptional service to Christiana Hospital when making the newborn screening specimen pickups. Several nurses and lab staff sang the praises of William and expressed their appreciation for his dedication, commitment and positive attitude. William is one of a kind!

DELAWARE'S DIVISION OF PUBLIC HEALTH LABORATORY

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Built: 1990

Business Hours: 8 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 and Division of Public Health programs including:

- HIV surveillance and prevention
- Immunization
- Epidemiology
- Newborn Screening
- STD prevention
- TB Elimination
- Drinking water
- Preparedness



Karyl Rattay, MD, MS, FAAP, FACPM,
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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 receive this newsletter by email, contact Liz Moore, Editor, at liz.moore@state.de.us.

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

