



DELAWARE LABORATOR

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Give us a reason to celebrate and we will!

Debra Rutledge, MBA MT (ASCP) Infectious Disease Laboratory Manager II



This past year was challenging, the Delaware Public Health Laboratory (DPHL), like many organizations, has experienced significant changes, funding cuts, staff retirements and has had to overcome many hurdles, particularly after the snowfall weather over this winter. Regardless, DPHL has many reasons to finally celebrate our successes this Spring!

First and foremost, DPHL finally has an official Laboratory Director. After the resignation of our previous laboratory director, DPHL has been looking to permanently fill this vacancy for over two years. Effective in January 2014, the Division of Public Health and the Department of Natural Resources and Environmental Control signed an agreement to share their Laboratory Director, Sergio Huerta, MD. Dr. Huerta is a Pathologist and has been the director of the DNREC laboratory for 22 years.

DPH Laboratory staff formed part of three different teams that won Employee Team of the Quarter awards for the last three quarters. The FERN Exercise Team included Brenda Chandler, Marion Fowler, Gregory Hovan, Jordan Hudson, Jessica McKnight, Gaile McLaughlin, Emily Outten, Shemeeakah Powell, and Nancy Valeski.

The Food and Drug Administration (FDA) asked laboratories to participate in a Food Emergency Response Network (FERN) food screening exercise in August of 2013. DPHL staff volunteered to participate by performing new complex testing methods to screen food for unknown biological agents and toxins. The staff felt that this would be a good opportunity to gain the ability and expertise to perform these methods, which have not been available at DPHL previously. The purpose of this exercise was to screen for 10 potential agents of bioterrorism and/or in-

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tentional contaminants in the milk supply. The staff held weekly meetings to plan for the testing and the flow from start to finish. The lab passed the exercise after many long hours, which involved working during weekends and staying late during the week. These new testing capabilities allow the DPH Lab to benefit the citizens of Delaware if the need should arise to screen foods for possible intentional contamination and to assist partners and other state or federal agencies in screening food for possible bioterrorism agents or toxins. The staff was extremely efficient and produced results in less than 5 days. This included identifying *Y. pestis* (plague) and Ricin Toxin in five milk samples. They proved to be well prepared and applied a streamlined process for handling over 200 test vials, plates, and methods to screen samples. This was a brilliant example of cohesive and organized team work with enthusiasm for the work, at DPHL.

Over the course of several years. Our couriers have been complimented by multiple individuals, at partner organizations, for their positive attitude and willingness to help resolve issues and concerns. The couriers have demonstrated, over and over again that they have a highly professional attitude and will-

ingness to put the needs of patients and customers first. On a recent survey conducted during June 2013, there was a 10% return rate that rated our couriers with the highest possible score for satisfaction. DPHL couriers make significant contributions to public service on a daily basis through this noteworthy achievement. They represent the front-line face and demeanor of the Laboratory to our customers. They are the people that our customers see and interact with on a daily basis. It is vital to have this level of top notch representation for our positive interests and commitment toward our customers.

In November 2013, the Milwaukee Journal Sentinel published an article about delays in the delivery of newborn screening specimens to Laboratories. The paper conducted a nationwide search for information on how long it takes newborn screening specimens to reach the testing laboratory. They stated that: *The nation's newborn screening programs depend on speed and science to save babies from rare diseases. But thousands of hospitals fall short, deadly delays are ignored and failures are hidden from public view—while babies and their families suffer. Delays at hospitals across the country undermine newborn screening programs, putting babies at risk of disability and death. The report stated that the overall goal of 99% of specimens received within 3 days was only met by two states, Iowa and*

Delaware. Iowa Public health Laboratory is open 24/7, allowing this goal to meet. Delaware meets this criteria because of the expert work and relationships that our couriers have with the hospitals.

Our DPH Pertussis Laboratory Team included Emily Outten, Nancy Valeski, Nickolas Rapp, Jordan Hudson, and Donna Colatrella and others from the Division of Public Health staff. DPH staff responded to a Pertussis outbreak in the Amish community. The response became a truly collaborative effort that required endless hours of work from sections across the Division and Community Health spectrum. The team treated over 300 Pertussis cases that were either confirmed by lab testing or Pertussis signs and symptoms. The dispensing of first-round antibiotic arrangements to deliver medications to families in a crucially time-sensitive manner. Staff also provided vaccinations for Pertussis as well as for other communicable diseases.

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This pertussis outbreak had the potential to become both an epidemic and a media event. With the activation of State Health Operations Center (SHOC) and the development of a carefully thought out action plan along with the dedication of highly committed professional staff, all went as planned. Not only did staff assess and treat patients affected by pertussis in a timely manner and with the utmost respect for their values and beliefs. In addition, they continued performing their routine duties, as well. This experience was truly a superb team effort!

Last but not least, April 20-26 was National Medical Laboratory Professionals Week (NMLPW). This is an annual celebration that recognizes medical and laboratory professionals and the work that they do. This provides organizations an opportunity to educate and showcase our laboratory to government officials and to the public. It presents laboratory testing and its importance. Staff celebrated lab week starting with breakfast, lunch with pizza and ice cream sundaes and Rita's water ice over the week. A school tour visited the Laboratory to learn about testing.

Calvary Christian Academy ninth grade science class toured the laboratory and got some hands on experience performing gram stains and learned about bacterial classifications. They also learned about biochemical reactions used to identify bacte-

ria and how to determine if a bacteria is susceptible or resistant to an antibiotic. Additionally, the kids were shown how a point of care test is performed by running the quality control testing of rapid hiv test kit.

Laboratory Preparedness Advisory Committee Meeting

Marion Fowler, MT (ASCP)

The Laboratory Preparedness Advisory Committee (LPAC) met on April 8, 2014, at the Delaware Public Health Laboratory (DPHL). Participants included DPHL staff, many external partners including Department of Public Health (DPH) Epidemiology and Health Systems Protection, United States Department of Agriculture (USDA), University of Delaware, Department of Agriculture, Department of Natural Resources and Environmental Control and sentinel hospital laboratories.

Emily Outten, Molecular Virology Laboratory Manager I, provided an overview of the influenza season, which was normal in volume and included primarily influenza A/H1N1 (pandemic). DPHL discussed with Christiana Care Hospital that DPHL appears to be detecting more late positives than their reference method. Dr. Flynn believes that this is a limitation of their method, given that they do not perform an RNA extraction. During the spring, there seemed to be an increase in influenza A/H3N2 and influenza B cases. There was also discussion about employers providing the trivalent flu vaccine versus the newer quadrivalent influenza vaccine that protects against both influenza B strains.

Paula Eggers, RN, BS, Infectious Disease Epidemiologist, gave a brief summary and presentation about an Amish Pertussis outbreak. Office of Infectious Disease Epidemiology (OIDE) is investigating the Amish Pertussis outbreak in Kent County, Delaware. As of April 7, 2014, a total of 182 cases were confirmed. This figure represents 19 PCR confirmations (2 of which were confirmed by culture at Center for Disease Control) and 163 Epi-linked cases utilizing CSTE case definition. From interviews conducted by OIDE, it was determined that the outbreak began in late November 2013. OIDE was notified about the suspect outbreak mid-January 2014. Based on the Epi-curve, cough onset peaked in early February 2014. Secondary household transmission has been high. Preschool and young school aged children (1-10 years) have accounted for the majority of cases. Prevention and control measures have included enhanced contact investigations, two vaccination/treatment clinics conducted in the Amish community, antibiotic distribution and ongoing education and outreach to the community. A Health Alert Network (HAN) announcement was also released to alert community healthcare providers of the outbreak.



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Gary Richards, PhD, USDA, Agricultural Research Service, Delaware State University, presented “Predatory Bacteria as Natural Modulators of Gram-negative Pathogens in Clinical and Environmental Settings and in Foods”. Vibrios are naturally occurring bacteria found in the marine environment. They are a leading cause of seafood-related bacterial illnesses and deaths in the US each year. Molluscan shellfish (oysters, clams and mussels) can concentrate vibrios in seawater to high levels within their edible tissues. When shellfish are consumed raw or only lightly cooked, vibrio illness can follow. *Vibrio parahaemolyticus* produces most of the illnesses and causes occasional closures of shellfish harvesting areas along the US East, West and Gulf Coasts. Symptoms include abdominal cramps, watery diarrhea, nausea, vomiting, and fever. *Vibrio vulnificus* can cause life-threatening illness, usually in immunocompromised individuals, particularly those with liver disease and excessively high iron levels in their blood (hemochromatosis). The mortality rate for *V. vulnificus* is currently 50% in the US and death can occur within just two or three days of onset. Symptoms include fever, nausea, vomiting, diarrhea, rapidly progressing septicemia, severe cellulitis, and skin lesions (bullae) often on the arms and legs. About 10% of patients experience hypotension and about 50% of the patients have changes in mental status. *Vibrio vulnificus* infection can be caused by ingestion of contaminated seafood, particularly raw oysters, and through wound infections acquired in the marine environment, such as through a cut on the foot while walking on the beach. Cooking shellfish eliminates these pathogens. However, many people prefer raw or lightly cooked shellfish, which may expose them to the rash of disease

The USDA, Agricultural Research Service, Seafood Safety Laboratory, on the campus of Delaware State University, found naturally occurring bacterial predators in seawater. These predators, known as *Bacteriovorax* species, were shown to readily kill even the most dangerous strains of *V. parahaemolyticus* and *V. vulnificus* in both seawater and oysters. The laboratory, working with the US Food and Drug Administration, the University of Delaware, and the shellfish industry, conducted a survey of seawater from four sites along the Delaware Bay, one site along the Gulf of Mexico, and one site in Hawaii. They found that these vibrio predators were present year around. Interestingly, *Bacteriovorax* species also infect and kill many Gram-negative bacteria, suggesting possible uses for the elimination of pathogens in environmental and clinical settings. Current research is aimed at developing a processing intervention that will use *Bacteriovorax* to effectively eliminate vibrios in market shellfish in order to reduce the burden of illness throughout the US and abroad. This research will also reduce economic hardship to the industry and the time and expense of epidemiological follow-up by health and regulatory agencies. For more information, see the following references available online:

Richards, G. P., J. P. Fay, K. A. Dickens, M. A. Parent, D.S. Soroka, and E. F. Boyd. 2012. Predatory bacteria as natural modulators of *Vibrio parahaemolyticus* and *Vibrio vulnificus* in seawater and oysters. *Applied and Environmental Microbiology*. 78:7455-7466.

Richards, G.P., M.A. Watson, E.F. Boyd, W. Burkhardt III, R. Lau, J. Uknalis, and J.P. Fay. 2013. Seasonal levels of the *Vibrio* predator *Bacteriovorax* in Atlantic, Pacific and Gulf Coast seawater. *International Journal of Microbiology*. doi: 10.1155/2013/375371
USDA, Agricultural Research Service, Delaware State University.

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Paul Hyland, program coordinator for the New DPH Medical Marijuana Program, in the Health Systems Protection Section, presented an overview of this program. Delaware will open its first pilot program *compassion center* in July of 2014. The program is limited to residents of Delaware, 18 years and older with a state issued form of identification, and treated by a Delaware licensed physician. Patients can legally purchase up to three ounces of marijuana in a 14-day period and carry up to six ounces. The program office will issue patient and caregiver identification cards and will coordinate all program functions, including fiscal management and supervision of the compassion centers.

Medical use of marijuana should be imperceptible to most citizens since patients are directed not to consume marijuana in public places or vehicles. Patients are also informed that re-directing marijuana from qualified patients to others is a serious action that could result in removal from the program.

Marion Fowler, Microbiologist II and Debra Rutledge, Laboratory Manager II, provided an update on Bioterrorism for DPHL. This included a discussion about the recent infectious outbreaks, including the Dept. of Corrections tuberculosis cases. Also discussed were concerns regarding new technology that is forthcoming in several sentinel laboratories to help validate these methods. Grant activities and exercise participation was encouraged with partners.

Twenty four participants (sentinel hospital microbiology laboratories, external partners and DPHL staff) attended the bi-annual Agents of Bioterrorism: 2014 Sentinel Laboratory Update which took place on March 20 and 21, 2014. The morning session included an overview of bioterrorism agents including descriptions of colony morphology and growth patterns and biochemical testing procedures, as written in the American Society for Microbiology "Sentinel Level Clinical Laboratory Guidelines for Suspected Agents of Bioterrorism and Emerging Infectious Disease". A discussion of biosafety, biosecurity, personal protective equipment and packaging and shipping of a "suspect bioterrorism agent" completed the morning session.

The afternoon session consisted of a wet workshop. Participants observed five of the bacterial bioterrorism (exempted non-Tier 1 select) agents plated on non-selective and selective agars, at different incubation times/temperatures, and their associated biochemical or rapid tests at six different stations. Each station also included two other "mimic" organisms for comparison. After completion of the stations, five unknown organisms, with case histories, were distributed at the stations. At the end of the afternoon, each unknown case was discussed in order to reinforce the material presented during both sessions of the day.



www.dhss.delaware.gov/dhss/dph/lab/labs.html

Pertussis Outbreak: Amish Community, Kent County, Delaware November 2013 – July 2014

Written by: Paula Eggers

AMISH BACKGROUND

Western Kent County, Delaware, is home to a modest Amish community with a population of approximately 1800 persons among nearly 300 households. The community hosts 8 church districts and 10 Amish schools. The Amish practice separation from some societal practices in the world through group solidarity and caring for their own.

Among these practices are that vaccinations are not widely accepted by the Amish and this has resulted in vaccine-preventable disease outbreaks occurring among this community as well as in other under vaccinated populations. The Amish vaccinate at a lower rate for a number of reasons including a lack of understanding about the benefits of vaccination, distrust over vaccine safety, and religious grounds (some view vaccination as putting faith in man over God). Of interest is that neither Amish religious doctrine nor Amish church bishops prohibit vaccination. Many current Amish family decisions regarding lack of vaccination stem from decades old history of parents and grandparents choosing not to vaccinate and few, if any, suffering health problems as a consequence. Therefore, vaccines and antibiotics, the mainstays of modern medicine, were not able to prevent and control the rapid spread of the most recent outbreak of pertussis in this community.

BEGINNINGS OF A PERTUSSIS OUTBREAK

On January 27, 2014, Betty Jo Charles, nursing supervisor at James Williams State Service Center (JWSSC), contacted the Office of Infectious Disease Epidemiology (OIDE) to inquire if reports of pertussis in the Amish community had been received. At this time, OIDE had not received any reports. By January 28, 2014, Betty Jo had clinic visits from a couple of Amish families bringing their children in to be evaluated for a cough illness. During these visits, Betty Jo heard details of multiple families in the community with sick children. Since she had a long working relationship with the Amish and having treated multiple pertussis cases previously in this community, Betty Jo immediately suspected pertussis.

OUTBREAK INVESTIGATION METHODS

Beginning January 29, 2014, OIDE epidemiologists developed a case investigation questionnaire, assembled the necessary supplies, and began active surveillance – i.e. door-to-door contact investigation - of the Amish community. During the course of the investigation, OIDE epidemiologists worked in close collaboration with staff from JWSSC and. The response team chose to collect nasopharyngeal swabs (NP) from people in Amish homes rather than request families with sick individuals to travel to JWSSC to provide the swab samples. Control measures and active surveillance for additional cases were instituted, including enhanced contact investigation, intensive community outreach and education, and vaccination clinics held at the home of an Amish family. Utilizing standing orders, Azithromycin was offered and delivered to all accepting families for treatment and/or prophylaxis. A total of 408 individuals were provided azithromycin and an additional 39 were retreated due to subsequent exposure or reemergence of symptoms.

For this outbreak, the National Notifiable Diseases Surveillance System (NNDSS), 2014 CSTE case definition, was utilized for case classification. A clinical case was defined as a cough illness lasting ≥ 2 weeks with onset during November 2013 – July 2014 and without other apparent cause in a person living in the Kent County, Delaware Amish community. A confirmed case was defined as

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a clinical case of pertussis that 1) was laboratory confirmed by polymerase chain reaction (PCR) for *Bordetella pertussis* or 2) had an epidemiologic link to a laboratory-confirmed case in the same household residence or Amish community (i.e., school, church) with at least one of the following signs or symptoms: paroxysms of coughing; inspiratory 'whoop' or post-tussive emesis.

DPHL performed PCR for *Bordetella pertussis* on 38 NP swabs collected during the outbreak investigation. Of the 38 swabs obtained, 21 (55%) were PCR positive. In order to further confirm the outbreak, 5 specimens were sent to CDC for culture confirmation. *B. pertussis* was cultured from two of the 5 specimens submitted.

SUMMARY OF FINDINGS

As of early July 11, 2014, OIDE interviewed 87 families representing approximately 550 individuals (30% of Amish population) and confirmed 211 cases of pertussis (21 by laboratory confirmation, 190 by epidemiologic linkage). The estimated outbreak attack rate of pertussis in this community was 11.7% (211 of 1800). Cough onset peaked in late January/early February with a secondary spike noted in March. The last documented cough onset was June 30, 2014. Primary (first case in household) and Co-Primary (onset within 6 days of primary case) accounted for 48.3% of cases. Secondary household transmission (cough onset 7-42 days after primary/co-primary case) accounted for 44.5% of cases and second primary household transmission (cough onset >42 days after primary/co-primary case) accounted for 7.1% of cases. (Table 1: Epi-curve). There was no documented spread outside of the Amish community and no hospitalizations or deaths were reported.

Of the confirmed cases, 7% were among infants (<1 year), 38% were among children aged 1-5 years, 28% were among children aged 6-10 years, 7% were among children aged 11-14 years and the remaining 20% were ≥15 years. With 65.6% of all confirmed cases occurring among children aged 1-10 years, exposure was increased due to close social interaction of ambulatory children.

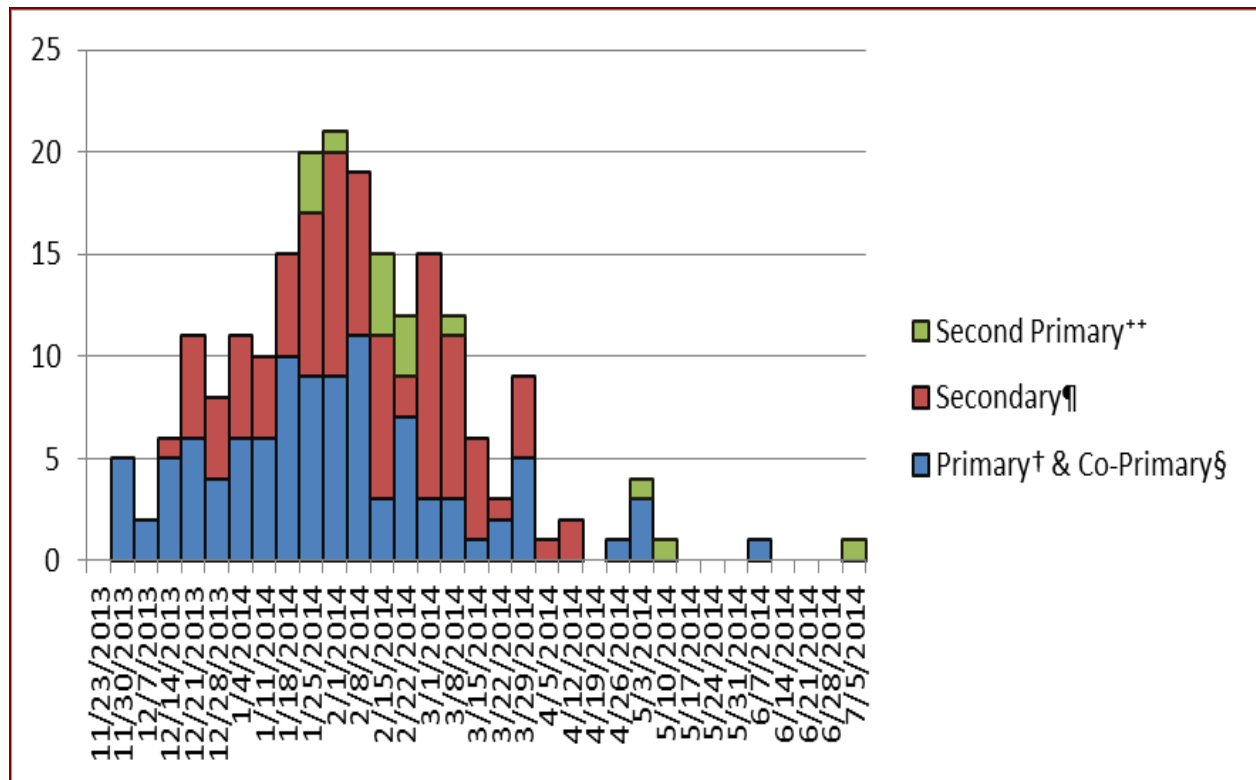
During epidemiologic interviews, families were asked about vaccination status of all household members. Of the 211 confirmed cases, 14.2% reported being fully vaccinated against pertussis (5 doses), 6.2% reported being partially vaccinated (≤3 doses) and 79.6% reported having never received any vaccinations. Among all individuals interviewed (~550), vaccination coverage was consistent with that seen among the confirmed cases. (Tables 2, 3) The low vaccination coverage and previous documented pertussis outbreaks in this community (1986, 2004-2005) suggest that continued periodic circulation of *B. pertussis* is likely.

Traditional outbreak control measures were challenging due to the majority of individuals being unvaccinated or undervaccinated, poor adherence to azithromycin treatment/prophylaxis and decades old myths surrounding 'whooping cough' in the community.

This outbreak investigation will remain active until at least mid-August 2014 – equivalent of 2 incubation periods. If no additional reports are received as of mid-August, the investigation will conclude and the outbreak declared over.

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TABLE 1 – Epi-Curve



† Primary - First case in household
§ Co-Primary - Cough onset within 6 days of Primary case
¶ Secondary - Cough onset 7-42 days after Primary case
** Second Primary - Cough onset >42 days after Primary case

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TABLE 2 – VACCINATION BY AGE GROUP – CONFIRMED CASES

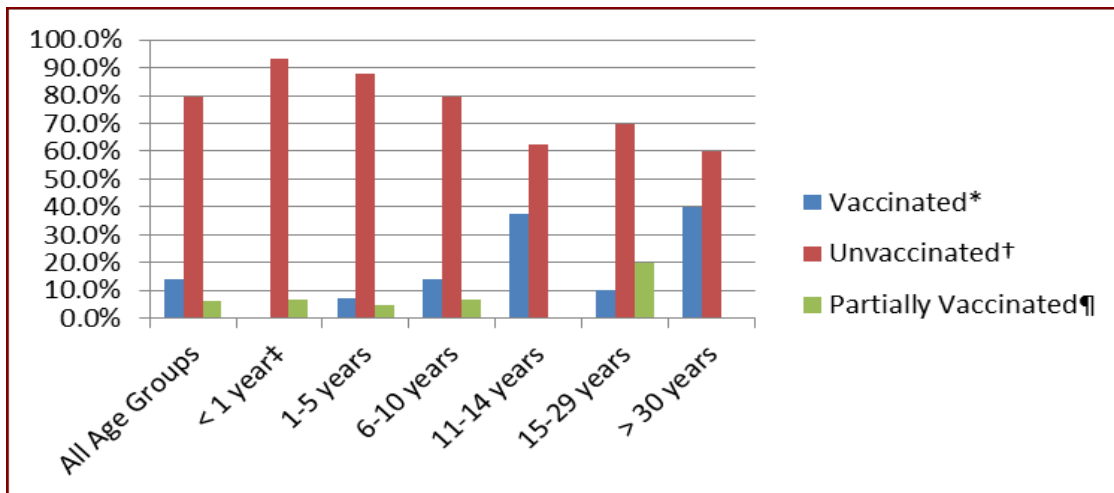
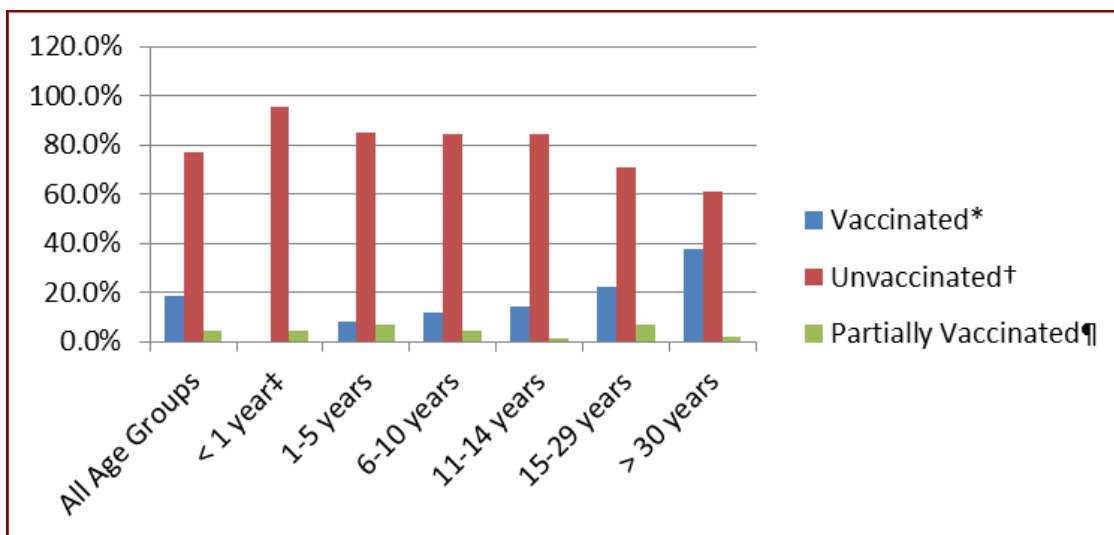


TABLE 3 – VACCINATION BY AGE GROUP – ALL INTERVIEWED



* Received ≥ 4 doses of vaccine against pertussis

† Received no vaccination against pertussis

¶ Received ≤ 3 doses of vaccine against pertussis

‡ Infants ranged from 2 weeks - 10 months all unvaccinated (or not eligible for vaccination due to age) except for a 4 month old that had received the 1st DTaP

Overview of Tuberculosis Testing at Delaware Public Health Laboratory

Written by Greg Hovan,

Tuberculosis (TB) is an infectious disease caused by *Mycobacterium tuberculosis*. For many years, this disease has been a public health concern since it has and continues to affect millions of people worldwide. Clinically, TB presents in two clinical stages: acute and latent.

Acute TB refers to an active infection that displays clear clinical signs and symptoms. Latent TB refers to the presence of *M. tuberculosis* in a patient that presents no clinical signs and symptoms. In the latter, symptoms may manifest after a varying period of time, particularly if the patient is immunocompromised or has an underlying co-morbidity.

Testing to identify a TB infection in the U.S. is partially funded by the Centers for Disease Control (CDC) through the United States Department of Health and Social Services (DHSS). Delaware's Public Health Laboratory's (DPHL) Clinical Microbiology Department performs testing for TB as part of CDC's Cooperative Agreement with Delaware's TB Elimination Program.

As a result of having established collaborative effort with multiple partners, DPHL staff attends bi-annual cohort review meetings with TB nurses and program administrators. During these meetings, case histories are shared and reviewed in order to identify programmatic lessons and challenges that can lead to improvements in patient management.

As of calendar year (CY) 2013, Delaware TB case rate is 2.1 patients per 100,000 population¹. Per the CDC¹, this places Delaware as a State with "low incidence" as compared to other States. During calendar year 2013, Delaware identified 19 active cases, which equates to 0.2% of the national average¹.

The Delaware Public Health Laboratory has improved operating procedures for the identification of *M. tuberculosis* as well as for non-tuberculosis *Mycobacterium* (NTM) that have clinical significance. Standard practice calls for performing acid-fast smears, along with cultures, for all high-risk patients and respiratory specimens collected from new patients. Samples are submitted to the DPHL by State health care providers that do not have the necessary infrastructure to do specific *Mycobacteria* testing.

Facilities that are able to test for the *Mycobacterium sp.* have the option of submitting specimens (referral) to the DPHL for further identification and to test for antibiotic sensitivity. This allows for physicians to use the most effective medication for treatment. In the Laboratory, sensitivity testing has traditionally included ethambutol, isoniazid, rifampin, and pyrazinamide. Currently, the DPHL is the only Laboratory in Delaware that provides sensitivity testing for this organism. Moreover, the State of Delaware has legislative regulations requiring health care organizations to report all cases of acute tuberculosis infection. Should a laboratory or health care provider, in Delaware, find *M. tuberculosis*, they must submit isolates to the DPHL.

DPHL uses both manual and automated methods to identify the *Mycobacteria*. Manual methods include fluorescent acid-fast stains to identify the acid-fast bacilli in clinical specimen smears. Standard culture media (Lowenstein – Jensen agar) is also used to grow the tuberculosis causing *Mycobacteria* as well as for the Runyon classification of Nontuberculous *Mycobacteria* (NTM). The Runyon classification is a determination of viability based on various factors such as rate of growth, production of yellow pigment and whether the pigment is produced in the dark or after exposure to light. The automated method used involves use of the BACTEC™ *Mycobacterium* Growth Indicator Tube (MGIT™) 960 *Mycobacterial* Detection System. This system detects the presence of *Mycobacterium sp.* and is also used for sensitivity testing for *Mycobacteria*. Among other manual methods, DPHL uses the Interferon-Gamma Release Assays (IGRAs), Quantiferon In-Tube assay, as a diagnostic measure for *M. tuberculosis* exposure. This is a screening test that identifies antigens to *Mycobacteria* in blood. It cannot differentiate acute (active) tuberculosis from latent infections. Even so, this test format has greater specificity than the traditional tuberculin skin tests (TST or PPD).



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Molecular approaches, like the Gen-Probe AccuProbe applies molecular probes on isolates to rapidly identify and confirm forms of *Mycobacteria* – i.e., *M. tuberculosis* complex, *M. avium* complex, *M. kansasii*, and *M. goodii*.

DPHL also uses quantitative Real-Time Polymerase Chain Reaction (qPCR) to rapidly identify *Mycobacteria tuberculosis* complex in respiratory specimens (preliminary identification). Doing this test requires 5-8 hours. This covers the time from specimen receipt to clinical notification. It is used in conjunction with acid-fast smears to provide clinicians with preliminary results that help to guide patient management (isolation, etc.) and the initiation of drug therapy.

If necessary, the DPHL can make a request to the CDC for a rapid Molecular Detection of Drug Resistance (MDDR) method in the event that drug resistance is suspected. This method shortens the time for typical drug resistance testing, which involves further culturing of the bacterium and can take up to six weeks.

Once the Tuberculosis (TB) organism is identified by DPHL, an isolate is sent to the Michigan Dept. of Health for molecular genotyping. The genotype data, which defines a DNA “fingerprint” of the organism, helps to improve epidemiological surveillance methods. The DNA “fingerprints” are stored in a national database library for use in matching outbreaks that may occur in different parts of the country.

One fact to keep in mind is that a positive PCR result does not always indicate active infection. This is because molecular methods identify a specific organism’s genetic material rather than the organism’s viability. Genetic material from dead or transient organisms that are not viable may be detected, particularly if the patient is being treated with antibiotics.

Since 2010, when real-time polymerase chain reaction (qPCR) was implemented at DPHL, significant improvements were made to the method such that it is now fine-tuned to high risk patients. This has resulted in greater testing efficiency well as greater reliability as compared to past years, when all specimens had to be tested. This led to the unnecessary use of labor time and material resources. With the improvements, there has been a decrease (35% per yr.) in the number of specimens that have to be tested.

Molecular testing methods can be expensive. Even so, significant savings result from being able to identify organisms early and thus initiate treatment in much shorter time frame; by minimizing the chance for complications to occur among patients; by helping to improve epidemiological surveillance programs; and by the ability to initiate public health measures early that are specific for at-risk populations easily override any cost consideration.

Molecular techniques have significantly improved over the past 10 years and they continue to improve. This allows health care providers and laboratories to more easily identify and treat infectious disease and to more promptly prevent or mitigate the spread of disease. As molecular methods evolve to require shorter test turnaround times as well as to have more sensitivity and specificity, they are also becoming more cost effective as a result of the increased use by laboratories. It is expected that, over time, molecular methods that currently test for different organisms separately will be coalesced such that they become cost-effective panels that simultaneously test for multiple organisms. This includes *Mycobacteria*.

For specific information regarding CDC genotyping, check <http://www.cdc.gov/tb/publications/factsheets/statistics/genotyping.htm>

For information regarding CDC’s Tuberculosis Program, refer to <http://www.cdc.gov/tb/>

Employee News



Yan Choi recently joined our Chemical Terrorism Lab as a Contract Analytical Chemist. Prior to starting at DPHL, she worked as a freelance academic editor and a teaching assistant. She has a B.S. in chemistry with a concentration in environmental chemistry from the University of Delaware and a M.A. in geological and environmental sciences from Queens College, where she did research in the North Pacific Sub-Arctic Ocean. She grew up in Wilmington, DE and enjoys running, reading, and playing board games.

Katia Vechorkina joined DPHL as a contract Analytical Chemist at Chemical Preparedness Lab. Katia is originally from Ukraine, where she obtained a M.S. degree in Organic Analytical chemistry. Recently, she came to the United States after spending over two years living in Montreal, Canada and working in an Environmental Laboratory. Now she lives in Wilmington, DE with her 2 sweet kittens that are originally from Smyrna. Katia loves reading, traveling and doing different kinds of sports activities such as swimming, skiing and cycling.



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 receive this newsletter by email, contact Anita Kettlehake, Editor, at Anita.Kettlehake@state.de.us.

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
- Lead
- Epidemiology
- Newborn Screening
- STD prevention
- TB Elimination
- Drinking water
- Preparedness

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Delaware Public Health Laboratory

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

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