

Nebraska Public Health Laboratory Newsletter

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NPHL Updates

by Peter C. Iwen, PhD, D(ABMM), Director, NPHL

"...we know there are known knowns, there are things we know. We also know there are known unknowns, that is to say we know there are some things we do not know".

This quotation by Donald Rumsfeld, former Secretary of Defense under President George W. Bush (2001-2006) provides some perspective that fits our interactions in the laboratory. We are confronted every day with those outbreaks that we know will occur. The other challenge we have include those emerging or re-emerging diseases, some with known causes, but others where causes are unknown.

An example of the latter is the recent recognition of the condition known as acute flaccid myelitis. The "jury is still out" on whether this represents a pathogen-caused infectious process or if this is due to some other means. Blake Hendrickson, DHHS Vaccine-Preventable Diseases Epidemiologist, provides a prospective on this disease.

Other articles in this newsletter offer insights on how the NPHL in collaboration with state partners address those known conditions that routinely occur every year, from West Nile virus disease during the summer, to norovirus in the early winter months, to our yearly influenza season.

On the information technology topic we also describe some of the improvements we are making to be prepared for this ever changing environment in the future. These include enhancements to NUIrt, our electronic ordering and reporting system and proposed improvements to the NPHL website.

Finally, I would like to introduce our new employees, Nicole Coffey, Administrative Assistant and Arlene Paulino, Medical Technician. Both Arlene and Nicole will be key to our success as NPHL continues in the quest to provide optimal services to our clients. A short bio of each is included in this newsletter.

Acute Flaccid Myelitis (AFM): The New Polio?

by Blake Hendrickson, MPH, DHHS Vaccine-Preventable Disease Epidemiologist

A major public health issue currently in the national spotlight is a confounding condition called Acute Flaccid Myelitis, or AFM. AFM is a rare disease that generally starts as a mild respiratory illness followed by acute onset of muscle weakness or flaccid paralysis in one or more limbs. The characteristically swift onset of paralytic symptoms has led many to call AFM a 'polio-like illness'. Like paralytic polio, the condition mainly effects children and is marked by pathology of the motor neurons in the spinal cord. Unlike polio, the cause, treatment options, and prevention methods are currently unknown.

There are many questions around AFM that need to be answered. Some of the most important include; what is causing AFM and why have there been more cases in the fall of 2018? Is this a new illness or are we quantifying a longstanding disease burden? Why have some cases tested positive for various enteroviruses while others have no infectious pathogens identified? Most importantly, what can be done to treat patients and prevent disease? Currently, the CDC, along with state and local health departments nationwide, have been coordinating efforts to collect information in order to solve this mystery.

The laboratory evidence is a critical part of the ongoing AFM investigation. Every reported case has its clinical records, MRI results, and multiple lab specimens are sent to the CDC for a thorough review and further testing¹. Testing is done to explore both diagnostic and the immunologic evidence. Enteroviral pathogens seem to be playing a role with Enterovirus D68, Enterovirus A71, Rhino viruses, and Coxsackieviruses, the most common identified this year. Stool samples are requested by the CDC for each case and unsurprisingly, none have tested positive for polio (also an enterovirus). Metagenomics sequencing is being used to search for pathogens that are not directly targeted. Additionally, post-infectious immune pathology is being investigated as a possible causal mechanism and assays are being developed to look for AFM-specific biomarkers².

Despite the growing concern, AFM is a rare condition. As of December 7, 158 cases have been confirmed from 36 states in 2018². The first 2 cases to date in Nebraska were recently reported and both children were hospitalized and later discharged. We are hopeful that the strong collaborations taking place nationally between healthcare providers, public health authorities, and laboratory scientists will provide timely answers to the many questions surrounding AFM.

References:

1. Centers for Disease Control and Prevention (CDC). "Specimen Collection Instructions." Updated 8 Nov 2018. Web. <https://www.cdc.gov/acute-flaccid-myelitis/hcp/instructions.html>.
2. Centers for Disease Control and Prevention (CDC). "AFM Investigation." Updated 10 Dec 2018. Web. <https://www.cdc.gov/acute-flaccid-myelitis/afm-surveillance.html>.

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Buzz Worthy Bites: 2018 Nebraska West Nile Virus Season

by Jeff Hamik, MS, DHHS Vectorborne Epidemiology Surveillance Coordinator

The 2018 Nebraska West Nile virus (WNV) season was an active one for the state. The Nebraska Department of Health and Human Services (DHHS) in conjunction with the Nebraska Public Health Laboratory (NPHL) and other public health partners worked together this summer to employ surveillance of this mosquito-borne virus. The two primary surveillance systems used in Nebraska to track the spread and intensity of the virus include mosquito surveillance and human case surveillance.

The 2018 mosquito surveillance season kicked off the week of May 27th and continued through the end of September. During these 18 weeks of surveillance 189,719 total mosquitoes were collected and identified. All *Culex* mosquito species (primary mosquito genus responsible for WNV transmission) were identified and pooled by species, trap collection date, and trap site. These samples were then sent and tested by NPHL for the presence of WNV. Through the mosquito testing, a total of 122 positive WNV mosquito pools were identified. While the total number of positive pools were not out of the ordinary, the location where these positive pools were collected was unusual. Typically, in Nebraska, the central and western portions of the state account for most of the WNV activity found in mosquitoes, while the proportion of WNV positive pools from the eastern portion of the state is much smaller in comparison.

However, this year, the eastern part of Nebraska accounted for most of the positive pools detected. During the 2018 season, 44 (36.1%) positive pools were collected from this region of the state (the central and western regions had 37 and 41 total positives respectively). Normally, this area of the state accounts for around 19.0% of all positive mosquito samples collected in a season. Even, more uncommon was the number of positive pools collected in Douglas County, Nebraska's highest populated county. Twenty-two (50.0%) of the 44 positive pools collected in the eastern region of Nebraska were identified in Douglas County. The 22 total positive pools was also the most positive pools collected from any county participating in the mosquito surveillance program. Douglas County has never had this number of positive pools happen in the history of the DHHS mosquito surveillance program. In fact, over the previous 10 years combined (2008-2017) Douglas County only recorded a total of 28 positive pools. What this data reflected was that WNV was circulating heavily in the eastern portion of the state, well above expected numbers, and was concentrated in the heaviest populated region of the state as well. This likely meant Nebraska would see more human cases than expected in a typical season. As the season played out, this is exactly what happened.

The earliest human case to date in 2018 had onset in mid-May, much earlier than the late June normally expected. In an average WNV year, Nebraska sees about 96 human cases with around 26.0% of cases being the more severe neuroinvasive form of the disease and approximately one to two deaths. To date, Nebraska has identified 242 total human WNV cases, of which 119 (49.2%) were the severe neuroinvasive form. This makes 2018 the third highest year for overall cases (after 2003 and 2006) and

second highest (after 2003) for the number of neuroinvasive cases since WNV first came to Nebraska in 2002. Additionally, 11 WNV-associated deaths were also reported this season making it the second most fatal WNV season after 2003. Currently, Nebraska ranks number one nationally in total overall cases in 2018, tied for first in WNV-associated deaths, and second in the number of WNV neuroinvasive cases. Only California ranks higher in the number of neuroinvasive cases (128). However, when taking into account that California has around 39 million residents and Nebraska has approximately 1.9 million residents, one can clearly see that the rate of disease was significantly higher in Nebraska.

So what are some possible reasons as to why this season was so severe? Weather may have been a contributing factor. Early in the season (May and June), the climate was hot and dry (May through part of June). Hot and dry temperatures can lead to fewer watering sources and thus bring mosquitoes and birds (the primary WNV reservoir) closer together. This in turn can lead to quicker virus replication in both mosquitoes and birds. Additionally, hotter and drier conditions can stress birds making them more susceptible to WNV infection. All of these actions when added together can lead to mosquitoes developing high infection rates earlier in the season and spilling over to the human population earlier than normal. Additionally, after this hot, dry period, Nebraska (particularly the eastern portion of the state) saw significant rainfall (150% to 300% of normal) in the second half of June and first part of July. This led to an increase in the number of standing water areas that could support *Culex* mosquito development. As a result, high numbers of *Culex* mosquitoes were collected from trap sites in the eastern region of the state. With higher than expected infection rates in the vector population and the large number of vector mosquitoes, combined with being located in the most populated region of the state, likely led to the severe WNV season encountered this year. Although hard to predict, it will be interesting to see if this trend repeats in 2019.

References

1. Centers for Disease Control and Prevention West Nile Virus Webpage: <https://www.cdc.gov/westnile/index.html>
2. Nebraska Department of Health and Human Services West Nile Virus Webpage: <http://dhhs.ne.gov/publichealth/Pages/wnv.aspx>
3. Paull S.H., Horton D.E., Ashfaq M., Rastogi D., Kramer L.D., Diffenbaug N.S., and Kilpatrick, A.M. 2017. Drought and immunity determine the intensity of West Nile virus. Proc Biol Sci. 2017 Feb 8;284(1848).

NEED TO CONTACT NPHL?

Hazardous Pathogens and Preparedness

24/7 Pager: (402) 888-5588

<http://www.NPHL.org>

Client Services

(866) 290-1406 (Toll Free)

402-559-2440

False-positive *Vibrio* and *Yersinia* Results on Culture-Independent Diagnostic Testing (CIDT)

by Brianna Loeck, MPH, Health Surveillance Specialist, and Rebecca Free, MD, Medical Epidemiologist, DHHS

Nebraska is among several states that have recently observed an increase in sporadic *Vibrio* detections identified initially by a CIDT, specifically when using the BioFire FilmArray Gastrointestinal PCR Panel (GI panel).

From January 1 to August 31, 2018, the Nebraska Department of Health and Human Services (DHHS) received 16 GI panel results where *Vibrio* and/or *Vibrio cholerae* were detected. All 16 specimens were sent to the Nebraska Public Health Laboratory (NPHL) for culture, and all were negative. This number represents a 400% increase in culture-negative, GI panel-positive (“detected”) *Vibrio* compared to 2017 (16 vs. 4). Of the 16 individuals with GI panel-positive *Vibrio* results in 2018, 15 had known exposure information, 10 (67%) of which lacked exposure risk factors typically associated with *Vibrio* infection.

When CIDT results are not confirmed by culture and patients lack typical exposures normally associated with *Vibrio* infection, the utility of classifying them as “cases” is not clear. Additionally, BioFire recently released communication stating that the agar used in Cary Blair media was found to be sporadically contaminated with low levels of *Vibrio* nucleic acid due to the presence of *Vibrio* species in water where seaweed/algae is harvested to make the agar. Due to the sensitivity of molecular testing, this contamination was considered a cause of false-positive *Vibrio* results, including *Vibrio cholerae*, on the BioFire GI panel.

Because of these concerns, Nebraska and several neighboring states decided to use new case definitions for vibriosis and cholera as follows:

- BioFire GI panel positive and culture positive = Confirmed case
- BioFire GI panel positive, culture negative, AND patient reports ≥ 1 exposure typically associated with *Vibrio* infection (e.g., shellfish or raw/undercooked seafood consumption, exposure to salt water, travel to an endemic area) = Probable case
- BioFire GI panel positive, culture negative, and no typical exposure reported = Not a case

Similar concerns also exist for false-positive BioFire GI panel results for detections of *Yersinia enterocolitica*. However, since this organism is endemic in Nebraska, further assigning case status for BioFire GI panel-positive, culture-negative results on the basis of exposure history is not feasible. Thus, we are not currently altering the case definition for yersiniosis.

Results from any CIDT should be used in conjunction with relevant clinical, epidemiologic, and supporting laboratory data, such as culture. Laboratory results that are incongruent with a patient’s clinical picture, exposure history, or supporting laboratory data should be interpreted with caution.

Culture confirmation is necessary for organism recovery and to provide a complete epidemiologic picture. Laboratories should continue to send GI panel-detected *Vibrio* or *Yersinia* stools in Cary Blair or other maintenance media to NPHL for culture confirmation as specified in 173 NAC 1-007.03. Please refer to the NPHL Quick Shipping Guides for proper shipping requirements.

For additional questions concerning shipment of these specimens, contact NPHL at 402-559-9444.

Additional information regarding the detection of *Vibrio* and *Yersinia* by the BioFire FilmArray GI Panel and other methods can be found in the following BioFire technical notes:

Technical Note: *Vibrio* detection by the FilmArray® Gastrointestinal (GI) Panel:

<http://www.online-ifu.com/ITIGI0239>

Technical Note: *Yersinia enterocolitica* detection by the FilmArray® Gastrointestinal (GI) Panel:

<http://www.online-ifu.com/ITIGI0250>

NETEC Visitors from Washington DC

by Karen Stiles SM(ASCP)^{CM}, State Training Coordinator NPHL

The National Ebola Training and Education Center (NETEC) hosted a 2-day workshop on March 27-28, 2018 at the University of Nebraska Medical Center. Special guest, Dr. Robert Kadlec paid a visit to the Collection of Specimens with High Risk Pathogens and Laboratory sessions to observe hands-on training.

Dr. Kadlec is the Assistant Secretary for Preparedness and Response (ASPR) at the U.S. Department of Health & Human Services (HHS). The ASPR serves as the principal advisor on matters related to public health emergencies, including bioterrorism. His office leads the nation in preventing, responding to and recovering from the adverse health effects of manmade and naturally occurring disasters and public health emergencies. As such, the office coordinates interagency activities between HHS, other federal agencies, and state and local officials responsible for emergency preparedness and the protection of the civilian population from public health emergencies. The NETEC is supported in part by ASPR.

References:

<https://www.hhs.gov/about/leadership/robert-kadlec/index.html>



Top Left to Right:
Dr. Chris Kratochvil, UNMC
Dr. Robert Kadlec, ASPR
Dr. Pete Iwen, NPHL

Bottom Right:
Sarah Trotter, NPHL observes
tasks performed by NETEC
participants



Dr. Robert Kadlec, ASPR poses with NETEC participants during the PPE and Specimen Collection for High Risk Pathogens course.

2019 Pandemic Influenza Outbreak (Full Scale Exercise Scheduled for May 6-10, 2019)

by Kathryn Bolkovac, DHHS Emergency Preparedness and Response-Training and Exercise Coordinator

The Nebraska Department of Health and Human Services Division of Public Health began collaborating in February of 2017 with our federal, state, and local partners to prepare for a 5-day, limited scope, Full Scale Exercise. This will be held in May of 2019 and will impact the entire state. The exercise will allow DHHS to evaluate the current state Pandemic Flu Plan designed to prepare and respond to a Pandemic Flu or High Pathogen event. The focus of the exercise will be on communications, resources and messaging, as teams work through an expanding and escalating event. Several high risk populations have been targeted in various sectors.

Participation in the development and execution of the exercise has included: DHHS Epidemiology Surveillance, Nebraska Public Health Lab, Nebraska Emergency Management Agency, Nebraska National Guard, USNORTHCOM Vital Connect, Federal U.S. Marshal Service, and the four core members of the Nebraska Health Care Coalitions which include, local health departments, emergency managers, emergency management systems, and hospitals. Private sector involvement will also be availed through trained and professional HAM radio operators.

The intent of this exercise is to assist state and local key leaders and planners to further develop epidemiologic surveillance activities, manage staffing levels, review interoperability of systems, and train for incident command and general staff positions, while maintaining “one message and one voice” to guide the general public during a catastrophic pandemic event.

USNORTHCOM will showcase various tactical communications capabilities that can become interoperable and compatible for public health sectors should they be needed during surge operations.

Save the Date NPHL 2019 Events

Nebraska ASCLS Spring Laboratory Meeting
April 10-12 Beardmore Event Center
Bellevue

2019 Nebraska Antimicrobial Stewardship Summit May 31 Beardmore Event Center
Bellevue

Seasonal/Pandemic Influenza Webinar - Jan 30
NeDHHS Full-Scale Pandemic Influenza Exercise
May 6-10

Quarterly Statewide Partnership Conference
Call with NeDHHS, NPHL and Nebraska Clinical Laboratories:
Monday, Feb 4 @ Noon (11am MT)
Monday, May 6 @ Noon (11am MT)
Monday, Aug 5 @ Noon (11am MT)
Monday, Nov 4 @ Noon (11am MT)

BT Proficiency Test
NeCSE & Post Conferences: Mar/Oct
LPX & Post Conferences: Apr/Sept

BT Training - Full Day Workshop
Gram Stain Webinar – Jan 15 (Online)
BT Workshop/Wet Lab – Omaha Mar 13
BT Workshop/Wet Lab – Kearney TBA

STATPack Drills – Quarterly
STATPack Webinar Training – Feb 11

Biosecurity vs. Biosafety

by Tony Sambol MA, RBP, Associate Director, NPHL

We are often asked; what is the difference between biosecurity and biosafety? Are they really the same? They are similar terms, but at the same time they are different and refer to different situations.

Biosecurity: Breaking down this term requires focus on the word “security.” Normally, one thinks of scenarios such as a car or house break-in, or someone accosted on a street and something of value taken. One doesn’t feel secure, so appropriate measures are taken to prevent this from happening such as locking the car, putting alarm systems, not walking alone at night along the street, as well as reporting to law enforcement if something did happen. In a laboratory setting, the emphasis is similar. A lab takes appropriate steps to minimize the possibility of someone entering the lab and taking a specimen or bacterial/viral culture, and use this for their own purpose which would most likely make one or more persons very sick, e.g., from *Salmonella* or *E. coli* infections. Just as we take many precautions in our personal life to our safety, we need to take similar measures in the laboratory. The laboratory should restrict access to only those individuals that need to enter or work in the lab. The laboratory should also be secured at night and entry points checked by security staff at appropriate intervals.

Biosafety: When considering the term “safety,” a person’s well-being comes to mind, such as being “safe” to avoid a car accident or escaping harm from a tornado. In these two examples, the person may have taken extra steps to be “safe”, e.g., wearing a seat belt or taking shelter in an interior area of a building. Taking extra measures may ensure a person is “safe” from outside harm. In the laboratory setting the term “Biosafety” is used to refer to what steps or precautions can be taken to prevent ourselves or coworkers from getting a laboratory acquired infection (LAI). Taking proper safety precautions such as wearing gloves, donning eye and mucous membrane protection, as well as performing all aerosol-producing manipulations in a biological safety cabinet (certified annually) offers the best chances for biosafety, not become sick from an LAI.

So while the terms biosecurity and biosafety are different, both are important and laboratorians should always be cognizant of both as we go about our daily work in the lab.

Norovirus Characterization

by Emily McCutchen, MS, Laboratory Technologist, NPHL

The Nebraska Public Health Laboratory (NPHL) received CaliciNet certification in the fall of 2017 following an extensive training and certification process. CaliciNet is a national network of federal, state and local public health laboratories working in collaboration with the CDC for the timely identification and monitoring of norovirus outbreaks, as well as the early detection of newly emerging norovirus strains. In Nebraska, NPHL uses CaliciNet supported assays to genogroup and genotype outbreak related noroviruses. This information is used for outbreak confirmation, surveillance, source linking and the determination of multijurisdictional outbreaks.

Noroviruses, belonging to the family Calciviridae, are a group of non-enveloped, single-stranded RNA viruses of approximately 7.5 kb in length. These viruses are the leading cause of acute gastroenteritis and foodborne-disease illness in the United States. Currently, there are seven recognized norovirus genogroups, three of which (GI, GII and GIV) affect humans. The assays designed through the Calicinet collaborative effort, genogroup and genotype GI and GII noroviruses.

To genogroup outbreak-associated noroviruses, NPHL utilizes a norovirus real-time reverse-transcriptase polymerase chain reaction (rRT-PCR). This assay employs sets of oligonucleotide primers and dual-labeled hydrolysis (Taqman) probes in a multiplex fashion to allow for the invitro quantitative detection of noroviruses from stool using a single assay master mix. The genogroup specification determined by the rRT-PCR assay is then used to determine oligonucleotide primer sets for downstream genogroup specific conventional reverse transcriptase PCR (RT-PCR). The RT-PCR allows for genotyping of the norovirus strain by amplifying genogroup specific regions of the ORF1 and ORF2 genes. Since recombination among viral strains occurs frequently, norovirus strains are genotyped based on both polymerase (P-type), coded for in the ORF1 gene, and capsid (C-type), which is coded for in the ORF2 gene. The RT-PCR product undergoes a purification process and Sanger sequencing. This generates the outbreak associated norovirus nucleotide sequence, which is then compared to known norovirus strains resulting in a final dual P-C norovirus typing. This allows for the identification of which polymerase and capsid the outbreak associated viral recombinant utilizes. Upon upload to the national CaliciNet database, the information can be compared to other concurrent outbreaks as well as track viral recombination tendencies and new strain emergence.

Nebraska DHHS and the local health departments collaborate to determine if an outbreak is occurring. Outbreak associated stool specimens that are tested positive for norovirus should be submitted to the NPHL for further testing. CDC requires at least 2 patients with the same epidemiological link and test positive for the same strain, to confirm an outbreak. See accompanying article on specimen collection.

References:

1. Centers for Disease Control and Prevention: Reporting and Surveillance for Norovirus: Calicinet; <https://www.cdc.gov/norovirus/reporting/calicinet/index.html>

(Norovirus, continued on page 7)

Specimen Collection Kits for Norovirus

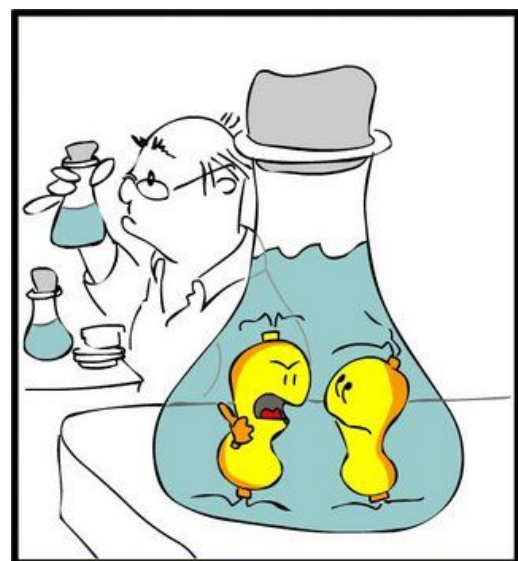
by Brianna Loeck, MPH, Health Surveillance Specialist, DHHS

Winter is here and so is norovirus season! NPHL and DHHS have developed new norovirus stool kits. Each Local Health Department has received these stool kits in the event of a suspected norovirus outbreak in their jurisdiction. In each suspected outbreak, public health will request between 2-5 stools to be collected for norovirus testing. If samples are collected, we may request local laboratories to temporarily store the specimens until a courier is available for pick-up.

These kits have all the appropriate supplies the individual will need when providing a stool sample. Our goal is to alleviate the burden and make it easier for individuals to provide a specimen for public health, as well as to increase the number of specimens being collected during each outbreak and to confirm the etiology of the outbreak.



The Norovirus kit includes: sterile container for specimen collection, NPHL Test Order Form, toilet seat cover, gloves, collection bowl, spoon, biohazard specimen bag, gauze, alcohol wipe and written instructions.



I'M FED UP WITH THIS GUY -
LET'S BECOME PATHOGENIC

<https://nitaarifindarius.files.wordpress.com/2011/05/microbiology-cartoon2.jpg>

Bringing Medical Technology to the Last Mile *STATPack* technology at York General Hospital provides state of the art medical care for rural communities

by Steph Peyatt Features Editor, York News Times, Apr 18, 2018

(Featured on Apr 18, 2018 in the local York News Times to show how the public health laboratory provides state of the art medical care for rural communities)

YORK—York General Hospital is one of the regional health care facilities participating in a biosecurity preparedness program called the Secure Telecommunications Application Terminal Package (STATPack™) developed by Information Technology Scientists at the University of Nebraska Omaha (UNO) in the College of Information Science and Technology. It is a collaborative effort among the information technology experts at UNO and health care professionals at the University Nebraska Medical Center (UNMC) and the Nebraska Public Health Laboratory (NPHL). To date, NPHL has deployed more than 36 STATPack™ systems throughout Nebraska. In addition, the Oklahoma State Department of Health Public Health Laboratory and the Kansas Department of Health and Environment Laboratory have also deployed STATPack™ across their states,” reads the STATPack™ website.

STATPack™ allows participating hospitals or diagnostic laboratories to send digital images of suspicious or unknown organisms electronically to a hub health laboratory for consultation. Aside from saving diagnostic time, this program reduces the risks that come along with samples delivered to the hub laboratory by courier. The application itself is a secure, dedicated, HIPAA compliant,

web-based network system that supports telecommunication connectivity of clinical health laboratories.

Some unique capabilities, which are listed on the STATPack™ site, include: macro-visualization of difficult specimens, specimen image of diagnostic quality, compliments a microscopic slide-based system, a database of electronic messages and corresponding images, and safe handling of biohazardous specimen using an airtight container to house diagnostic specimen and camera.

The STATPack™ principle investigator, Dr. Ann L. Fruhling, collaborating with Dr. Steven Hinrichs, NPHL Director had the idea of taking technology to rural hospitals and saw the need for this technology on a local level. “Our goal is to help the rural communities have everything they need,” said Fruhling. “We are taking the technology to the very last mile.”

The goal is to support rural healthcare as much as possible. York General Hospital, being among a total of 50 rural and metropolitan hospital laboratories in the 3 state area participating in the program, is an example of the positive impact the STATPack™ is having in delivering microbiology consultations in a timely manner.

Fruhling also feels like this is a prime example of the university giving back and feels that this has been a wonderful investment for the state of Nebraska. The CDC, of course, has extremely advanced technology, but that is at a state level. The STATPack™ technology helps doctors on a local level.

Bill Bolte, the Lab Director at York General Hospital, reported that York General has been affiliated with the bioterrorism program at UNMC and the Nebraska Public

(York News Times, Continued on page 7)



York Laboratory Director, William P. Bolte, MT(ASCP) at York General Health Care Services uses STATPack Lite to communicate with NPHL on a potential hazardous organism.

(York News Times, Continued from page 6)

Health Laboratory for over 15 years. In addition, the STATPack™ program was initiated through a federal grant to explore quicker ways to identify bioterroristic organisms and prevent the further spread to contacts. According to Bolte, the program has evolved to recognize and identify other highly contagious bacteria which may be encountered in the healthcare setting, but may not necessarily be due to terroristic activity or have occurred as a result of harmful intent.

“We participate in regular challenge events to help us stay sharp with our skills in recognizing potential pathogenic organisms that can cause wide-spread disease, as well as practice the use of the STATPack™ application, the microscope camera, and camera that communicate with application,” said Bolte. “In some of the challenge sets, we also get to practice and demonstrate safe packaging and shipment of potentially hazardous organisms that we may not be able to definitively identify here at YGH.”

The STATPack™ system has had its other uses as well for YGH. “We have utilized it in an alternative sense in identifying unusual blood cells discovered in a patient’s circulation that were suspicious of a malignancy of the bone marrow, such as leukemia,” reported Bolte. “We have been able to capture microscopic images of the abnormal cells and securely e-mail them to our pathologist for nearly real-time consultation. While this bonus feature was not the original intent of the STATPack, it has served as a means to help confirm findings or provide our local physicians with direction in which to pursue other possible diagnoses.”

Educationally speaking, there are several uses for the STATPack™ system too. Because of the system, YGH has the ability to capture microscopic images of bacteria and images of bacterial colonies growing on culture media for students to use for case studies and projects. YGH has many students who rotate through the hospital and are expected to complete these types of assignments for their clinical experience in the field. These images can be captured in a high-resolution digital format, which can then be transferred into a PowerPoint presentation to present to their instructors and classmates.

YGH also has the ability to store images from visiting specialists to help demonstrate a particular infectious agent that was isolated from their patient. According to Bolte, this is yet another bonus perk of having the STATPack™ system in the lab at YGH.

Without a doubt, the STATPack™ system is a vital resource for YGH in providing the best patient care possible to the York community.

(Norovirus, Continued from page 5)

2. Guideline for Norovirus Classification and Genotyping, Appendix C, 2017, National Calicivirus Laboratory, Division of Viral Disease, Centers for Disease Control and Prevention
3. Massachusetts Department of Public Health, Bureau of Communicable Disease Control, Guide to Surveillance, Reporting and Control, Norovirus & Other Caliciviruses.

Outbreak! Laboratory Readiness in Surge Situations

by Karen Stiles SM(ASCP)^{cm}, State Training Coordinator NPHL

The Public Health Preparedness and Response 2018 National Snapshot Report published by the CDC dedicates a chapter to laboratory preparedness¹. Government leaders realize that clinical laboratories are the “front line” and heavily relied upon for their strong ability to quickly detect and diagnose those who are impacted. The Laboratory Response Network (LRN) strategy is to support the front line laboratories by providing support and education to complete these capabilities.

Whether it is a widespread epidemic or localized threat, an outbreak of any virus, bacteria or parasite can quickly diminish laboratory resources, including supplies and staffing. Ebola certainly has emphasized the need for advanced biosafety guidelines and the 2017-18 influenza year taxed testing capabilities. These events promoted statewide training after unusually large infectious outbreaks. Historically, NPHL has provided preparedness training in large events such as Ebola, LRN select agents, chemical terrorism, Gram stain for the generalist and packaging and shipping. Yet, the more common *Salmonella*, Norovirus or *Cylospora* outbreaks which occur more frequently are never discussed on a statewide basis. What does it take to prepare for these more common outbreaks?

First and foremost, maintain and exercise a fully developed surge plan. Perform the risk assessments required to know what your laboratory can and can’t do safely. Other steps include knowing where to obtain additional supplies (having an agreement with nearby laboratories or commercial vendors), developing measures and methods to mitigate a possible crisis, knowing your limits and have plan to limit or discontinue testing if needed.

The key to handling any outbreak is communication, both within and outside of a laboratory. Within each lab, there should be a staffing contact list or call tree and a plan to bring in additional staff if needed. Communication beyond the laboratory must be with the local public health partners, including surveillance, epidemiology officers and the public health laboratory. Get to know your public health department and healthcare coalition staff to feel at ease with contacting them. Ideally, all entities involved in an outbreak should be at the same table, such a conference call or email, to assure all information is shared with the appropriate entities.

Planning and communication will ensure the earliest possible recovery and return to pre-incident levels or improved functioning. Improved planning and response coordination across all levels will present new opportunities to leverage resources while maximizing effort and resulting in increased efficiency.

Ultimately, any surge situation will strengthen lab resilience, develop, maintain and leverage collaborative relationships among state, reference and other surrounding laboratories.

References:

1. CDC Center for Preparedness and Response PHEP Program Fact Sheet; <https://www.cdc.gov/cpr/pubs-links/2018/index.htm>

NUlirt Test Ordering

by Jessica Carr, MPH, Regional Pathology Services

With the recent transition to the new ordering system, NUlirt, the NPHL laboratory has noticed a dramatic increase in incomplete demographic information from Hospitals or Clinics using our manual test request form. To prevent processing delays and potential reporting delays, please make sure that all shaded areas of the test request form are completed.

These shaded areas include:

- Full patient name
- Patient DOB
- Patient Gender
- Complete patient address
 - Street, city, state, and zip code required
- Patient phone number
- Patient race
- Patient ethnicity
- Collection date and time
- Full provider name
- Submitting facility information
 - Account number
 - Account name
 - Address, city, state and zip code
 - Phone number
 - Fax number
- Originating laboratory or clinic name, city and phone number (if applicable)

Not completing the NPHL Test Request Form in its entirety will result in a delay in sample processing, while the process of obtaining a completed form is carried out. Many of the fields above are required in the NUlirt program due to Nebraska state mandates before an order can be entered and submitted.

If you have questions regarding any of these requirements, please reach out to NPHL Customer Service at 402.559.2440, or toll free at 866.290.1406.

NEBRASKA PUBLIC HEALTH LABORATORY
 UNIVERSITY OF NEBRASKA MEDICAL CENTER
 961180 NEBRASKA MEDICAL CENTER
 OMAHA, NEBRASKA 68198-1180

PHONE: 402.559.2440
 TOLL FREE: 866.290.1406
 FAX: 402.559.9497

SEE BACKSIDE OF REQUISITION FOR APPROPRIATE SHIPPING ADDRESSES

PATIENT LAST NAME		FIRST NAME	
DOB	GENDER	PT. ID# / ADDITIONAL INFO	
/	<input type="checkbox"/> MALE <input type="checkbox"/> FEMALE <input type="checkbox"/> PREGNANT		
PATIENT ADDRESS		APT	
CITY		STATE	ZIP
COUNTY CODE	STATE CODE	SURVEILLANCE SITE	
PHONE NUMBER			
RACE: <input type="checkbox"/> White <input type="checkbox"/> Black <input type="checkbox"/> American Indian <input type="checkbox"/> Asian/Pacific Islander <input type="checkbox"/> Unknown <input type="checkbox"/> Other			
ETHNICITY: <input type="checkbox"/> Hispanic <input type="checkbox"/> Non-Hispanic <input type="checkbox"/> Unknown			

Clinical Diagnosis/Etiology Agent: _____
 Date of Onset: _____ Recent Travel NO YES, Specify below
 State/Country: _____ Travel Dates: _____

Source: Blood Bronchial Aspirate Cervical
 CSF Nasopharyngeal Rectal

**NPHL
Test Request Form**

ALL SHADED AREAS REQUIRED			
MI	COLLECTION DATE	TIME	
	/ /	____ AM / PM	
PROVIDER:			
(LAST, FIRST, MI)		(NPI)	
Submitted to NPHL by:			
Account Number			
Account Name			
Address			
City		State	Zip Code
Phone		Fax	
Originating Laboratory or Clinic:			
Name			
City & Phone #			



From all of us at NPHL

Pete Karen Vicki Emily Nicole Tony
Amanda Kacie David
Bin Greg Arlene Sarah Roxanne

Meet the New Staff at NPHL: Nicole Coffey and Arlene Paulino

NPHL welcomed two new staff members; Nicole Coffey and Arlene Paulino. We asked Nicole and Arlene to share a little bit about themselves.



Nicole Coffey and Arlene Paulino

Nicole Coffey, Administrative Assistant

Nicole has over 25 years of management, administrative, and customer service experience in both business and education. For the last decade, she has served as a leadership and career education program director for Nebraska Career Education and the Department of Education. Prior to that Nicole worked for 4-H Youth Development at UNL, and in grocery retail management before moving to Nebraska.

On the NPHL team Nicole helps manage the administrative needs of the lab, supports Dr. Iwen and Tony Sambol, and coordinates the maintenance of NPHL's website and social media (soon to come!).

Nicole is originally from upstate New York and moved here from Virginia, but has lived in Nebraska for the past 20 years now. Although she is new to the field of laboratory science she is excited to continue her public service with new challenges and especially enjoys working with the NPHL team as well as UNMC colleagues.

Arlene Paulino, Medical Technician

Arlene is new to Nebraska and, most recently, the mainland US. Arlene was interviewed about her laboratory experience and education.

What interested you in pursuing a career in laboratory science?

I started out as a pre-pharmacy student at the University of Arizona. I made the wait list, but unfortunately didn't get in the following semester. My plan B was to graduate and start my career in Microbiology.

Where did you attend med tech school? Where did you receive your formal training?

I graduated from the University of Arizona with a major in Microbiology and minor in Chemistry. I was a Microbiologist at the Guam Department of Public Health and Social Services and have an environmental background from Guam Environmental Protection Agency as well as Guam Waterworks Authority.

Are there any specific areas of laboratory science that you have special interest or expertise?

I enjoy working in Chemistry. I've done some Chemistry work for Guam EPA and Guam Waterworks Authority. I think mass spectrometry/chromatography is a desirable skill to have in any type of setting.

What was unique about working at your facility and the challenges of being in Guam?

One of the challenges on Guam was procurement of media and equipment. Commercially prepared culture media often has a short shelf life by the time it arrives on island. To be cost effective, almost all of our media and biochemicals were dehydrated and often prepared in house such as blood agar plates, Mueller Hinton for antimicrobial susceptibility testing, triple sugar iron agar, and Phenylalanine. Candle jars were used in place of CO₂ incubators. For the most part, API and biochemicals were our methods of identification.

What do you think is the single biggest change in the laboratory since you started?

Many of the micro tests I've performed were not automated. I am always eager to learn the latest software and technology.

What do you like most about your job?

The numerous opportunities for learning and professional growth.

What do you like most about Nebraska?

The people here are very friendly.

*NPHL Newsletter
is currently
available
electronically!
To subscribe, email
kstiles@unmc.edu*

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Mailing Address

Nebraska Public Health Laboratory Newsletter - Winter 2019

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The Nebraska Public Health Laboratory Newsletter is a publication of the Department of Pathology and Microbiology, Steven H. Hinrichs, MD, Professor and Chairman, at the University of Nebraska Medical Center. The views expressed here do not necessarily reflect the opinions of the Nebraska Department of Health and Human Services or the University of Nebraska Medical Center.

Please direct suggestions, questions, or comments to: Karen Stiles, Editor, NPHL Newsletter, 985900 Nebraska Medical Center Omaha, NE 68198-5900 or kstiles@unmc.edu.

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