



Tennessee Department of Health Public Health Laboratory Newsletter

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State Laboratory Testing For Zika Virus

Zika virus gets its name from a forest in Uganda and was first discovered in 1947. The first human cases of Zika were detected in 1952. Since then, Zika has been found in areas of tropical Africa, Southeast Asia and the Pacific Islands. Prior to 2007, there were at least 14 documented cases. There may be many other undocumented cases, due to the similarity of Zika signs and symptoms with those of other known viruses. The Pan American Health Organization (PAHO) issued an alert regarding a confirmed case of Zika in

Brazil in May 2015. The World Health Organization (WHO) declared a Zika as a public health emergency of international concern (PHEIC) the following year. There have been numerous reports of local transmission in numerous countries and territories and expectation of continued spread to other areas. At the time of publication, TN State had 3 confirmed travel-associated Zika cases reported. Humans can become infected with the Zika virus by several different ways: a bite of an infected Aedes species mosquito, from a

mother to their child, through sexual contact and through blood transfusions. Most people are asymptomatic and as a result, are not aware they have the virus. An individual with Zika virus may demonstrate the following symptoms: fever, rash, conjunctivitis (red eyes), joint and muscle pain and headaches. Although the incubation period is unknown, it is believed to be from a few days to a week. The illness is usually mild, and lasts for several days to a week, following a bite by

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Environmental Laboratory's Periphyton Program

What is periphyton? Periphyton is composed mostly of algae. Algae can float in the water column or they can stick to other things (such as rocks, submerged trees and roots, and aquatic vegetation) which give these things a slimy, shiny, look in the water. Yes, that green slimy stuff that smells bad and turns you swimming

pool a nice shade of green. These algae are actually very important organisms not only locally, but also globally. For instance, it has been estimated that almost 80% of all the atmospheric oxygen is produced by algae...yes, algae. Algae is also present in many items you use or eat everyday such as; tooth paste, Tums, chocolate milk,



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BIOSAFETY NEWS

Today's **Safety Challenge:**

- Demographic, environmental, economic, and cultural trends have made outbreaks of emerging and reemerging infectious disease more common.
- We must assume that health care workers, including the laboratory workforce, will encounter more outbreaks of known disease in the future.
- We need to provide better biosafety guidance and support, especially in risk assessment, to clinical diagnostic laboratories.



Developing a **Culture of Safety:**

Successful establishment of a **Culture of Safety** requires that laboratory safety become an integral and apparent priority to the organization, embraced first and foremost by the top management and with the infrastructure support required to foster behaviors among its employees. As required by the Clinical Laboratory Improvement Amendments, the College of American Pathologists, and other accrediting agencies, a laboratory director needs to assume the responsibility for:

- Establishing and enforcing a policy for a **Culture of Safety** within the lab,
- Identifying as many hazards as possible and specifying practices and procedures that will eliminate those hazards,
- Ensuring that all personnel are instructed and engaged in performing risk assessments and demonstrating that they can identify laboratory hazards in their individual work environments,
- Ensuring that all personnel are trained and competent in the standard practices and techniques that minimize identified workplace hazards,
- Provide an avenue for personnel to identify hazards and present risk-mitigation strategies to the management, and
- Educate clinicians and nurses regarding safe specimen procurement and transport to ensure their safety and that of the laboratory personnel who receive the clinical specimens.

As Biosafety Officer for the Tennessee Department of Health, Division of Laboratory Services, I will be communicating and collaborating with all clinical diagnostic laboratories across the state to assist in improving our **Culture of Safety**. My work has already begun right here at the central public health laboratory in Nashville. I look forward to visiting cities across the state and offering training and tools to help us all be safe and be prepared. The next emerging or reemerging infectious disease will come! Let us be prepared to be safe and offer the best in laboratory diagnostic testing for the people of Tennessee!

Best,
Rolinda Eddings, MT (ASCP)
Biosafety Officer
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Association of Public Health Laboratories Launches Biosafety and Biosecurity Resource Website

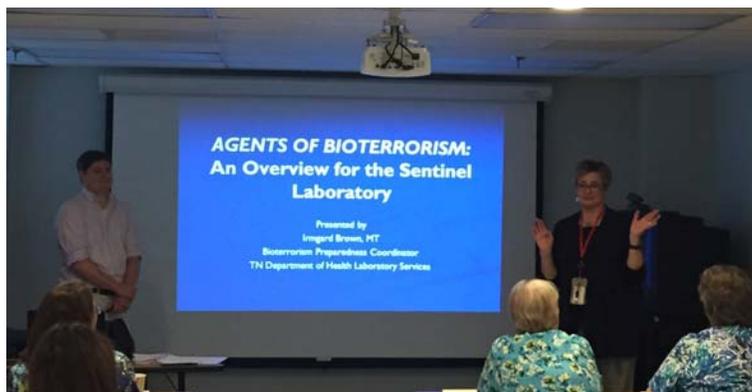
APHL has announced the launch of their new biosafety and biosecurity resources webpage. This new webpage contains useful resources for building and maintaining a robust biosafety and biosecurity program for both public health laboratories and their sentinel clinical partners.

The webpage is available at: <http://www.aphl.org/biosafety>

Plan of Action Workshop

Two Plan of Action Workshops were held in Nashville on May 19 and May 20th. The Plan of Action Workshop is a hands-on workshop that focuses on practical methods that clinical laboratories use to remain alert for agents of bioterrorism.

Participants learn about surveillance and evaluation procedures that can be integrated into routine microbiological lab procedures. Referral of suspect cases to the Laboratory Response Network laboratory is also discussed.



The next Plan of Action Workshops are planned for Thursday, September 22 and Friday, September 23. If you would like to register for either day, please visit the Laboratory Continuing Education and Workshop page:

<http://www.tn.gov/health/article/lab-education>
to download the flyer and registration form.

Please register early as limited seats are available!



Periphyton (cont'd)



ice cream, sushi, and baby formula. Algae are a group of primitive aquatic plants that lack true stems, roots, and leaves. Although they lack typical land plant anatomy, they still use sunlight to make food just like land plants. Algal growth is a natural occurrence in all water bodies including lakes, ponds, streams and rivers. Algae as a whole is usually broken down into two major groups consisting of phytoplankton and periphyton. Phytoplankton are free-living algae suspended in the water column. A large population of these can turn pond or stream water that "pea soup" green color usually in the warmer months. Periphyton are benthic algae living on or attached to underwater rocks, vegetation or other substrates. It is the culprit that makes those stream rocks so

slippery.

So why does Tennessee want to study periphyton? The Environmental Protection Agency requires that each state have two indicator species. Macroinvertebrates have traditionally been Tennessee's first species. For their second species they chose Periphyton. Other states use periphyton as well, while some states choose to use fish. Fish do not respond to environmental stressors as quickly as macroinvertebrates or periphyton. Periphyton are attached to the substrate and cannot move, and their community structure is affected by the chemical and physical properties of the water in their environment. Because they cannot move, they are affected by pollution more so than other organisms. Their inability to move coupled with their short life span (approximately 14 days)



makes them an ideal organism to monitor for water quality. Like most organisms, certain species can thrive in polluted water, while others prefer clean water. By studying the species that make up the community as a whole, one can get an idea of water quality within that system. Tennessee has been collecting this type of data on aquatic insects (macroinvertebrates) for many years, and it forms the base for stream water quality determination. By combining these two data sets Tennessee hopes to get a more defined "three dimensional" evaluation of water quality.

*Submitted by Marka Smith
Aquatic Biologist/Phycologist*

Dr. Amy Woron Accepts FoodNet Star Award



Dr. Amy Woron, pictured with Dr. Patricia Griffin from CDC FoodNet, accepts a FoodNet Star Award. The award recognizes Dr. Woron and Tennessee Laboratory Services' hard work, collaborations, and contributions in food safety outbreaks and responses as a FoodNet Partner Site.

Upcoming Continuing Education Opportunities

2016 Packaging and Shipping Workshops

- Nashville—July 27
- Memphis—September 27
- Jackson—September 28



Tennessee Department of Health Division of Laboratory Services will be hosting packaging and shipping workshops at several locations throughout the year.

Registration forms may be downloaded from:

http://www.tn.gov/assets/entities/health/attachments/Updated_PS_Flyer_2016_final.pdf

LRN Roadshow Series

- Cookeville—July 14
- Knoxville—August 10
- Nashville—August 31

The Laboratory Response Network workshop is a full-day course that covers a variety of topics. Topics are based on suggestions from laboratorians across the state. This year's topics include:

- Carbapenem-resistant Enterobacteriaceae
- Biorisk
- Select Agent Rule-outs
- Quality Assessment and Quality Control
- Private Drinking Water Quality
- Updates on Emerging Infectious Diseases

Registration forms may be downloaded from:

http://www.tn.gov/assets/entities/health/attachments/LRN_2016_flyer.pdf

ENCORE PRESENTATION

Webinar: Culture Independent Diagnostic Testing for Clinical and Reference labs

Tennessee Department of Health Epidemiology and Laboratory will present an encore presentation of the webinar on **August 23rd from 10:00–11:00 am** (Central) discussing the topic of CIDT and GI diseases. The flyer and registration form may be downloaded from:

https://www.tn.gov/assets/entities/health/attachments/GI_CIDT_ENCORE_FLYER.pdf

**For more upcoming workshops and continuing education opportunities, visit
the Lab Services Continuing Education and Workshop webpage:**

<http://www.tn.gov/health/article/lab-education>

Zika Testing Cont'd

an infected mosquito. Zika is rarely fatal. The virus is usually detectable in the blood of the infected person for up to a week, but has been found longer in some. Once a person has been infected with the Zika virus, they will likely be protected from future Zika infections.

The TN Department of Health State Laboratory has been validated to perform testing using the Centers of Disease Control and Prevention Triplex Real-Time RT-PCR (Reverse Transcriptase-Polymerase Chain Reaction) Assay and the CDC Zika IgM Antibody Capture Enzyme-Linked Immunosorbent Assay (Zika MAC-ELISA). This testing will detect Zika, Dengue and Chikungunya viruses. All three viruses have similar symptoms and are transmitted by the same species of mosquitoes. Serum and urine are requested for all adult testing. In Infants, serum is requested and CSF, if collected for other testing.

All testing for Zika in TN must be pre-approved by a regional public health officer. A decision tree form and a lab requisition must accompany the samples to the TN State Public Health Laboratory.

At this time, only samples meeting the following criteria are recommended for testing:

- Pregnant Females that have
 - Traveled or a partner that has traveled **OR**
 - Unprotected sexual contact with a male partner with travel to an area with Zika virus transmission
- Males and Non-pregnant Females who
 - Traveled to an area with Zika virus transmission **AND**
 - Symptomatic during travel or within 2 weeks of returning to U.S. **AND**
 - Symptom onset was in last 12 weeks
- Infants <2 weeks of age
 - <2 weeks of age **AND**
 - Symptomatic **AND**
 - Mother traveled to an area with Zika virus transmission within 2 weeks of delivery
- Possible Congenital Infection in infants
 - Infant with microcephaly or intracranial calcifications **AND** whose mother traveled to an area with Zika virus transmission while she was pregnant
 - Infant born to a mother with a positive or inconclusive test result for Zika virus infection

Currently, there is no vaccine to prevent or medicine to treat Zika virus. The recommended treatment includes palliative treatment: resting, drinking fluids to prevent dehydration and taking medication to reduce fever and pain. Aspirin and non-steroidal anti-inflammatory drugs (NSAIDS) are not recommended. Persons infected with Zika should avoid mosquito bites during the first week of illness. During this time, the virus can be passed from an infected individual to a mosquito via mosquito bites. The infected mosquito can then spread the virus to other people.

*Submitted by Linda Thomas, Molecular and Enteric Manager
and Tracey Woodard, Molecular Biology Supervisor*



**Microbiologist 4 (CERT)
Serology / Virology
Manager**

**Microbiologist 2 (CERT)
Multiple Departments**

**Job openings and applications can be found at:
<http://agency.governmentjobs.com/tennessee/default.cfm>**

Welcome New Employees!

February 2016

Mohamed Adas—Newborn Screening
Deborah Godfrey—Newborn Screening

March 2016

Asimwe Kalugendo—Immunoserology

April 2016

Debbie Wells—Newborn Screening
Rachel Yates—Laboratory Technician 1

May 2016

Ashley Rhodes—Microbiologist 2—Knoxville
Diana Van Wart—Newborn Screening
Brielle Davis—Laboratory Technician 2
Courtney Fisher—Laboratory Technician 2
T’Nia Ford—Laboratory Technician 2
Marquita Alston—Laboratory Technician 2

June 2016

Shane Allen—Immunoserology

Congratulations on your Promotions!

November 2015

Daniel Golson, MPH—Laboratory Informatics Manager

March 2016

Jessica Bryant—Administrative Services Assistant 2,
Training and Administration

May 2016

Valerie Ragland—Supervisor Newborn Screening
Christina Moore—Supervisor Molecular Biology,
Sequencing Section

Employees Awarded 2015 Service Awards



Front row (from left): Irmgard Brown, Claudia Lowe, Rene Buckner, Janet Maddox, Xianzhang Meng, Nathan Britt, Sarah Driskell, Tesfaye Yigzaw. Back row : Julie Viruez, Bryan Mason, Dorothy Baynham, Henrietta Hardin, Luz Castro Maderal, Linda Carney, Robert Read.

2015 service awards were awarded on April 15. The following employees were awarded service awards:

Henrietta Hardin- 40 yrs	Linda Carney- 15 yrs	Nathan Britt- 5 yrs	Keith Morris- 5 yrs
Robert Read- 30 yrs	Luz Castro Maderal- 15 yrs	Janet Maddox- 5 yrs	Julie Viruez- 5 yrs
Rene Buckner- 25 yrs	Tesfaye Yigzaw- 15 yrs	Bryan Mason- 5 yrs	
Dorothy Baynham- 15 yrs	Sarah Driskell- 10 yrs	Gwendolyn Mckee- 5 yrs	
Irmgard Brown- 15 yrs	Claudia Lowe- 10 yrs	Xianzhang Meng- 5 yrs	

A Bacterial Word Search

U L I N A Y W F K U R B A E S Y E B B A W H H B A
 S T E R X G N N C X J I W R U P R Z F J N A Q U L
 F U Q G E P S G H O H F M Y C U W J S E I L C R L
 K K L T I I G J O C R U A H C X T L I N N L S K E
 K W Z I R O I Z I H I A E E O N W J I U L N I H S
 A K O Z H C N R U R J L L T C H B S F K D G P O I
 O I Z G L P E E E X I L S C O B R R R P U H T L C
 X O L E Q H O T L C A R Y Z L E N J H Y S O G D N
 N A Z E C J C M O L G T H E Y Y O M H C B H W E A
 L D D S R A J B E W A A Z N H R C Q L U N G C R R
 N C E M B R A E C A S T R E P T O C O C C U S I F
 K L A O W C O O I R H N H K A B E E R P S D I A K
 E J C M T F I B A C E E B I T V I B R I O C Q R S
 I Y D E P U R A N I F I B W S A N O M O D U E S P
 M H R Q G Y D B Q I V S P R B O R D E T E L L A U
 W G M I Y M L V E T H S W Y Y E D U X F I I B P C
 O E D B H H A O D G J E M R O V D X R M K Q C Q X
 J L E R H E L R B I U R F D R B D O C X N B W Y M
 C D B M B L L Z N A W I K C I F R U Y P E Q Q A N
 D Z R R P D E Y Z H C A I T K T Z Y V P J F X F J
 Y W B S P Z G X B F Q T Q V C K B T A S Z J G H U
 A I R E T S I L T F L U E T E T M G K D H S F C J
 C T Y W U M H S A B J A J R Q E G W M V E V V H J
 Q Q P K W C S A Z V L R I B A G Z I R Z S R J A R
 W V V Y A T C E M E P O Z Z N A A S A S N R Z R S



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|---------------|--------------|---------------|----------------|
| Bordetella | Escherichia | Listeria | Staphylococcus |
| Borrelia | Francisella | Mycobacterium | Streptococcus |
| Brucella | Haemophilus | Neisseria | Vibrio |
| Burkholderia | Helicobacter | Pseudomonas | Yersinia |
| Campylobacter | Legionella | Shigella | |



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