Tennessee Department of Health
Public Health Laboratories Newsletter

John Dreyzehner, MD, MPH, FACOEM
Commissioner of Health

Richard Steece, PhD, D(ABMM)
Director, Division of Laboratory Services

VOLUME 7, ISSUE 1

SPRING 2015

INSIDE THIS ISSUE:

Department of Health. Authorization No. 343384, 03/15
Website only

Lab Requisitions and Labeling of Specimens

The Tennessee Department of Health, Laboratory Services (TDHLS) is a Clinical Laboratory Improvement Amendments (CLIA) certified laboratory and must abide by CLIA regulations. Included in these regulations are standards that address laboratory test requests and labeling of specimens submitted for laboratory testing. This article will cover some of the special aspects of these standards that must be followed for the laboratory to receive, accession and analyze specimens in a timely manner.

The first regulation is in regards to test requests. CLIA standard 493.1241 states the laboratory must have a written or electronic request for patient testing. TDHLS is in the process of implementing electronic lab orders and electronic results for county health departments across the state. Currently, all county and metro health departments except Sullivan and Knox Counties participate in the electronic order and electronic requests receipt system. Shelby County went live with electronic orders February 17.

According to CLIA standards, certain required information must be included on the test requisitions. This is true whether the requisition is in electronic or paper form. All of the required fields are captured within the electronic ordering system. Required fields on the paper requisitions are indicated with an asterisk (*). Many times requisitions are received with incomplete or incorrect information. Minimum information that must be included on TDHLS requisitions are listed below. The list also includes a description of the type of information that should be captured and examples of common mistakes.

Name and Address of the Institution Submitting the Specimen
This is the facility submitting the specimen. This should not be an individual's name (such as the doctor, nurse or person collecting the sample/ specimen).

Patient's Name
This should include the patient's first and last name. Please verify last names are correct. On occasion, specimens are received with one last name on the tube and a different last name on the request. Please verify these match before sending the specimen to the lab for testing.

- **Patient's gender**
- **Patient's date of birth**
- **Source of specimen**
- **Date specimen was collected**
- **Tests requested**

County of Residence
This is the county in which the patient resides. This should not be the county in which the patient sought care and specimens were collected. This information is used for epidemiological purposes.

Failure to accurately complete the test requisition leads to delays in testing and reporting. All of the above fields are marked as required fields in the laboratory information system and final reports cannot be generated without all fields being complete. Follow-up on incomplete or incorrect information is time-consuming for the laboratory and for the submitters. Laboratory personnel must make individual phone calls to each provider to obtain the missing or correct information. The submitter is required to complete a new requisition in its entirety and fax it to the laboratory for documentation purposes.

Continued on Page 3

Specimen Submission to CDC

The Tennessee Department of Health Laboratory Services requests all providers adhere to CDC (Centers for Disease Control and Prevention) specimen submission guidelines. These guidelines were put in place by CDC to limit unnecessary or duplicate test requests by hospitals or private laboratories. Per CDC guidelines, private citizens, health practitioners and hospitals must contact their local State Public Health Department Laboratory (PHL) to submit specimens for testing at the CDC. With the exception of facilities participating in special studies or a surveillance project through the CDC, only state health departments and federal agencies may submit specimens for reference testing to the CDC.

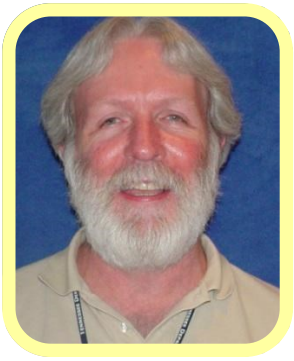
Hospitals or private laboratories should not send specimens directly to CDC unless prior authorization from the PHL has been received. If the PHL approves direct submission, the PHL will fill out contact information and provide the template to the clinical lab for use. Hospital laboratories should obtain a form that has been pre-populated with the standardized State PHL submitter information to ensure expedient reporting of results.

Submitted by
Dorothy Baynham
Manager Special Microbiology

"Hospitals or private laboratories should not send specimens directly to CDC unless prior authorization from the State public health laboratory has been received."

Public Health Employee Highlights

Amy M. Woron, MS, PhD, has been chosen to serve as a member of the APHL (Association of Public Health Laboratories) Food Safety Committee. Her service will help enhance the role of public health laboratories in the nation and the world. We appreciate her willingness to contribute a portion of her schedule to this important effort. Additionally, she is also the co-chair of the APHL CID (culture independent diagnostics) subcommittee.



Dr. Bob Read has been appointed to the APHL Environmental Laboratory Science Committee for the period July 1, 2014 to June 30, 2016. Participation in APHL Committees offers members an opportunity to influence the direction of public health. The committees are the engine of APHL programs, policies and activities. They serve as a conduit through which issues important to public health laboratories are identified, investigated and addressed.

Lab Requisitions and Labeling of Specimens Cont.

In addition to proper completion of the specimen requisition, the specimens themselves must also be correctly identified.

TDHLS's policy is that each sample must be labeled with at least **two** identifiers that must also match the information submitted on the test requisition.

Some examples of identifiers include:

- Patient's first **and** last name
- Patient's ID number
- Patient's chart number
- Patient's hospital number

Two identifiers must be included on the specimen and the test requisitions for laboratory personnel to match the identifying information. Specimens that are received without at least two identifiers on the specimen and requisition will not be tested and will be reported as unsatisfactory due to improper labeling.

TDHLS strives to provide timely, accurate testing and results to all submitters. Proper completion of requisitions and labeling of patient specimens can enable the laboratory to provide improved service to our customers. An electronic copy of the requisition form may be found at

https://health.state.tn.us/lab/PH-4182.pdf.

Submitted by: Paula Gibbs
Assistant Clinical Director of Microbiology

TENNESSEE DEPARTMENT OF HEALTH

Tennessee Department of Health
Division of Laboratory Services
Influenza and Respiratory Viral Panel Submission Requisition

Place State Lab Accession Label Here
(TDH use only)

*Indicates Required Fields

SPECIMEN COLLECTION INFORMATION

*Last Name: Doe	*First Name: Spencer	MI:
*DOB: 5/24/1913	*Gender: ☐ Male ☒ Female	
Race: ☐ American Indian ☐ Asian ☐ Black ☐ Hawaiian/Pacific Islander ☐ White ☐ Other (_____)	Ethnicity: ☐ Hispanic ☐ Non Hispanic	
Address:		
City:	*County of Residence: Clay	State: Zip Code:
*Date of Collection: 2/5/2015	*Specimen Type: NP	*Specimen Source: NP

Flu Requisition Form With Required Patient Information

CLIA Standard States:

"The laboratory must establish and follow written policies and procedures that ensure positive identification and optimum integrity of a patient's specimen from the time of collection or receipt of the specimen through completion of testing and reporting of results."

Nashville Welcomes Newcomers !

April 2013
Erica Terrell: Bacteriology Microbiologist II

August 2013
Cliff Cunningham: Immunoserology Microbiologist II
Cara Smith: Intern Microbiologist I

September 2013
Nicole Braun: Intern Microbiologist I
Carol King: Newborn Screening Microbiologist II
Tracy Minster: Virology Microbiologist II

October 2013
Blanca Martinez: Newborn Screening Microbiologist II

January 2014
Andrew Lux: Intern Microbiologist I
Diane McLerran: Administrative Secretary
Dr. Richard Steece: Public Health Laboratories Director

July 2014
Tamika Douglas: Newborn Screening Microbiologist II

August 2014
Nicholas Johnson: Reporting Office Supervisor I
Kourtney Parks: Environmental Sample Chemist II
Mark Young: Chemical Terrorism Lab Manager
Starshemah (Star) Fitzgerald: Special Microbiology Microbiologist II

November 2014
Natalie Ingalls: Environmental Sample Chemist II
James Roberts: Aquatic Biology Biologist II

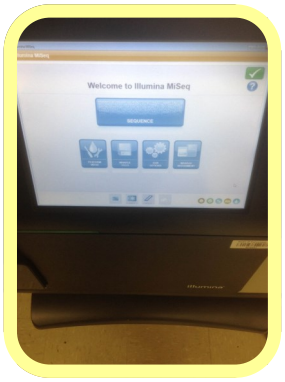
December 2014
Lizabeth (Beth) Brown: Special Microbiology Microbiologist II
Jessica Bryant: Microbiology Lab Laboratory Technician I

A New Molecular Technology: Next Generation Sequencing

One of the challenges public health faces today is the speed at which technology is advancing. Industry advancements are demanding change in the way foodborne disease surveillance and outbreak investigations are treated. Many laboratories have begun performing culture independent diagnostic testing (CIDT). CIDT has the capability of identifying a human pathogen without the requirement of a pure culture and will lead the physician to a diagnosis within hours instead of days. With the initiation of CIDT testing, many laboratories will discontinue isolation of pure cultures for patients with infectious diseases. The rapid technological advancement of CIDT is currently being addressed by the public health laboratory. For public health laboratories to maintain transitional surveillance systems, isolating pathogens from clinical material may need to be continued.

A strategy to meet these challenges is to introduce a new molecular technology known as Next-generation sequencing (NGS). Next-generation instruments identify bases of small DNA fragments and re-synthesizes them from a DNA template strand in a parallel fashion, resulting in millions of copies of DNA.

For the past seven years, Tennessee has performed DNA Sanger sequencing methodology using capillary electrophoresis (CE). Sequencing a large DNA genome using this method takes several weeks to complete. Next-generation sequencing will complete this same process in just a few days. Sanger sequencing will continue to be a standard method for performing some bacterial and norovirus identification; however, Next-generation sequencing is the method of choice for large sequencing reactions. The opportunities this technology provides may include antimicrobial detection and identification, personalized medicine, environmental research, clinical diagnosis of rare and hard-to-detect illnesses, and cluster detections in outbreak situations.



Next Generation Sequencing Technology

Tennessee is one of six states that has received funding for advanced molecular diagnostic testing. Tennessee will also be a pilot site for investigating and performing surveillance for foodborne disease outbreaks. Using Next-generation molecular technology, Tennessee Public Health Laboratory goals are to perform sequencing for clinical isolates and to perform beta-testing drafts of CDC protocols.

Submitted by Linda S. Thomas
Supervisor—Molecular Biology

Meet the New Director of Laboratory Services

Richard S. Steece, PhD, D(ABMM) has been named director of the Tennessee Department of Health's Division of Laboratory Services. In this position, Steece will direct all TDH microbiology and environmental lab programs and services.

"We are pleased to welcome Dr. Steece to our team," said TDH Commissioner John Dreyzehner, MD, MPH. "His practical experiences at the regional, national and international levels will serve Tennesseans well."

Steece comes to Tennessee with more than 30 years of experience in public health laboratories in Minnesota, New Mexico and South Dakota. He has also worked internationally and provided support for the Centers for Disease Control and Prevention, the Association of Public Health Laboratories, the Clinical Laboratory Standards Institute and U.S. Department of the Interior projects in Asia, the South Pacific, United States Territories and Europe.

Steece recently served as national chlamydia laboratory coordinator for the Centers for Disease Control and Prevention and assisted in developing the National Infertility Prevention Project. He is a board-certified Diplomate of the American Academy of Microbiology (ASM) and holds a PhD in biology from the University of New Mexico and a Master of Science in microbiology from South Dakota State University.

"After a long nationwide search to fill this critical position leading more than 150 laboratory professionals providing 1.5 million wide-ranging and complex tests every year, we are delighted to have Dr. Steece join us," said TDH Chief Medical Officer David Reagan, MD, PhD. "We are also appreciative of the yeoman's work and stewardship of acting director Jim Gibson over the past 18 months."

"The TDH Division of Laboratory Services is well-known across the country for its excellent work and highly qualified laboratory staff," Steece said. "I'm honored to be associated with such a respected program and look forward to the challenges ahead."

Transport Media

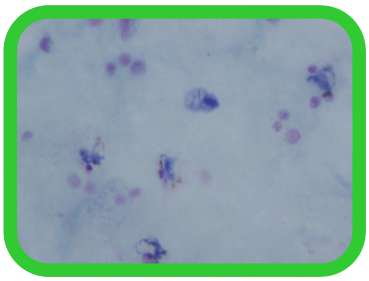
The State of Tennessee Laboratory Services, in conjunction with the Tennessee Department of Health's Epidemiology division, has changed manufacturers for the stool transport media for culture specimens. The new media will look similar to the existing media. Continue to use your current stock of stool transport vials until it is depleted or expired. The new media will be provided by the state lab for outbreak sample collections when our current in-house stock has been depleted.

The two different transport media are comparable to each other in function, but the new media will provide a cost savings. When collecting stool samples, please fill the vial with sample to the red fill line and, as always, TWO patient identifiers are required on the vial and must not cover the transport media expiration date.

Submitted by: Sheri Roberts
Supervisor of Enteric Bacteriology

"The State of Tennessee Laboratory Services...has changed manufacturers for the stool transport media for culture specimens."

Submitting Specimens for Blood Parasite Evaluation



Thick Smear

Samples suspicious for blood parasites should be treated in an expeditious manner. Laboratory tests for blood parasite evaluation may be affected by many factors, such as sample collection, smear preparation, fixation method and technique. Proper staining procedure is important for morphological identification. In addition, information on the requisition should include clinical history relevant to diagnosis, recent travel history, prophylaxis and treatment. This information is helpful in determining possible patient exposure to areas endemic to specific organisms and efficacy of treatment protocol. To comply with surveillance regulations, if blood parasites are suspected upon smear evaluation at your facility, please expedite sample submission to the state laboratory.

Specimen Handling and Requests

Along with a completed patient requisition, please submit the follow samples for evaluation:

Methanol Fixed Smears Stained with Giemsa or Wright's Stain.

Prepare, fix and stain blood smears preferably within one hour of collection. Whole blood loses its affinity for stain within three to four days of collection and the blood parasite life cycle continues in the sample as if the parasite was in the mosquito and not the human host. The Centers for Disease Control recommends methanol fixation to inactivate any blood-borne viruses. Links for recommended staining procedures can be found at: http://www.cdc.gov/dpdx/resources/pdf/benchAids/malaria/malaria_staining_benchaid.pdf.

Thick and Thin Smears

Thick smears permit the microscopic examination of a large amount of blood allowing for semi-quantitation of parasitic load. Thin smears are more useful to microscopically identify the organism and species. Please keep in mind quality smears improve the parasitologist's ability to accurately, microscopically identify organisms. The Centers for Disease Control and Prevention has recommended procedures for smear preparation at the following link : http://www.cdc.gov/dpdx/resources/pdf/benchAids/malaria/Malaria_procedures_benchaid.pdf.

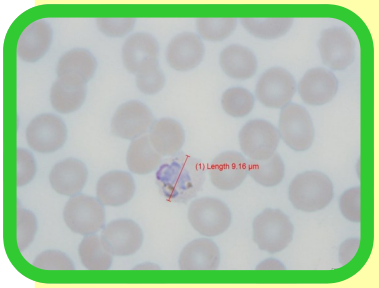
References:

Tennessee Department of Health Laboratory Services Parasitology manual. Blood Parasites Procedures. Pages (23-26)

Centers for Disease Control DPDX Diagnostic Procedures. http://www.cdc.gov/dpdx/diagnosticProcedures/blood/index.html. Electronic access 08/08/2014.

Submitted by: Natasha Stapp
Supervisor—Special Microbiology

"Samples suspicious for Blood parasites should be treated in an expeditious manner."



Thin Smear

Sentinel Laboratory Coordinator Update

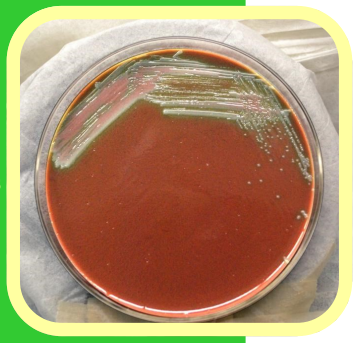
As many of you know, Dr. Teresa Clark has resigned her position as the Tennessee Department of Health Laboratory Service's (TDHL) Sentinel Laboratory Coordinator to pursue new opportunities. We are very happy for her and hope she is successful in her new endeavors.

As a result of Dr. Clark's departure, TDHL's Sentinel Laboratory Coordinator position is now in a transitional state. Several TDHL employees are working together to maintain contact with the Sentinel Laboratories until the position can be filled. We ask that all Sentinel Laboratories bear with us while we are in this transitional state.

For questions, please contact:
Irmgard Brown irmgard.a.brown@tn.gov or 615-262-6359
Rolinda Eddings rolinda.eddings@tn.gov or 615-262-6318

Spring 2015 Continuing Education Opportunities

Per Tennessee Medical Laboratory Board Rule 1200-06-01-.12, all licensees must complete 24 hours of continuing education per 2 year period preceding the renewal year.



Plan of Action Workshops

Plan of Action Workshop

This program focuses on practical methods clinical microbiology laboratories should use to remain alert for the agents of bioterrorism. Procedures for the referral of suspect cases will also be discussed.

Thursday, April 9

Friday, April 10

Thursday, May 14

Nashville, TN

Continuing Education Credit Awarded

See website for registration form:
http://health.state.tn.us/lab/education.htm

Courtesy Air Sea Containers, Miami, Florida.

Packaging and Shipping Workshops

Packaging and Shipping Workshop

Individuals who send or oversee the transportation of infectious or biological substances must be aware of the regulations and changes to regulation that apply to the mode of transportation they employ. This workshop will assist participants in maintaining compliance with the Department of Transportation (DOT), the United States Postal Service (USPS), and the International Air Transport Association (IATA) regulations currently in effect.

Thursday, February 26 - Memphis

Friday, February 27 - Jackson

Thursday, March 12 - Nashville

Tuesday, April 28 - Chattanooga

Thursday, May 21 - Nashville

All locations will have a class from 8:00 AM - 11:00 AM ***and*** a separate class from 1:00 PM - 4:00 PM, provided there are enough attendees.

Continuing Education Credit Awarded

See website for registration form:
http://health.state.tn.us/lab/education.htm

Congratulations on Your Promotions!

April 2013
Loretta Morris: Media Prep Laboratory Technician II

May 2014
Paula Gibbs: Assistant Director of Microbiology

June 2014
Rolinda Eddings: State Training Coordinator
Stephanie Poindexter: Vector-borne Diseases Supervisor
Dennis Watson: Reporting Office Supervisor II

July 2014
Dorothy Baynham: Special Microbiology Manager

August 2014
Kenneth Bowman: Media Prep Laboratory Technician II

September 2014
Natasha Stapp: Special Microbiology Supervisor

November 2014
Bryan Mason: Virology Supervisor

Congratulations on Your Retirement!

Susan Aldred
Cathie Ayers
Betty Bolton
Cynthia Graves
Mary Hillstrom
Ella Jones
Jin Liu
Debesh Maldas
Melba McCullough
Sean O'Connell
Ramona Phillips
Philip Sumner
Sonny Ufegbu
David Whybrew

Job Openings in Laboratory Services

The Tennessee Department of Health Laboratory Services is hiring for the following, certified positions:

Microbiologist II (CERT)

Multiple Positions Available

MUST have State licensure as a Medical Technologist or Microbiologist

Microbiologist II Job Summary:

Under general supervision, is responsible for routine laboratory work of moderate difficulty as it relates to clinical, chemistry, microbiological, environmental and/or molecular areas; and performs other tasks as required.

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

Meet the New Assistant Clinical Director of Microbiology!

Paula Gibbs has been working for the State of Tennessee's Department of Health Laboratory Services for 12 years. She has held various positions including Bacteriology Microbiologist II, General Bacteriology Supervisor and Manager of Special Microbiology.

Paula earned her Bachelor's of Science degree and licensure in Medical Technology from Middle Tennessee State University, and, prior to her service to the state, she worked in St. Thomas Hospital's laboratory and in multiple doctors' clinics as a medical technologist.

Meet the New State Training Coordinator!

Rolinda Eddings has been working for the State of Tennessee's Department of Health Laboratory Services for three years. She has been a part of several departments including Special Microbiology and Bioterrorism.

Prior to working for the state, she worked as a medical technologist in all areas of the clinical laboratory. She then moved into performing esoteric laboratory testing: histocompatibility in the transplant immunology lab. During those years she served as supervisor and manager.

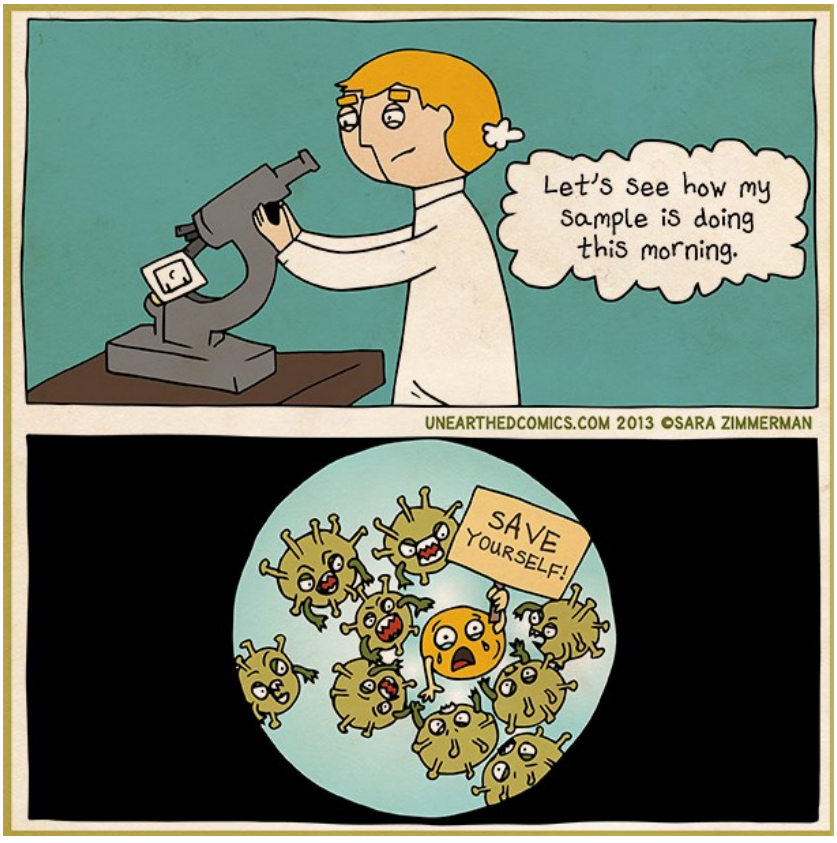
Rolinda earned her Bachelor's of Science degree in Biology and Medical Technology from Western Kentucky University. Prior to her state service, she worked at Baptist Hospital, St. Thomas Hospital, Dialysis Clinic Inc., and Sarah Cannon Research Institute in Nashville.

Laboratory Word Search

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

Can You Find?

Norovirus	Necropsy
CDC	Isolate
Smear	Requisition
Isothermal	Media
Filter	Influenza
Identifier	Specimen
Sequencing	Methanol
Autoclave	Basinwater



Credit to: Unearthed Comics
http://unearthedcomics.com/

Brain Teaser

A scientist is experimenting with bacteria that are one micron in diameter and that reproduce by dividing every minute into two bacteria. At 12:00 PM, she puts a single organism in a container. At precisely 1:00 PM, the container is full.

At what time was the container half full?

Find more Brain teasers at Scientific Psychic!

http://www.scientificpsychic.com/mind/mind1.html

Answer:

The container was half full at 12:59 PM. When the bacteria doubled in the next minute, the container became full. This is an example of **exponential growth** where the growth rate is a mathematical function that is proportional to the function's current value.