



Beyond the SC O P E

A publication of the Missouri State Public Health Laboratory



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Integrity, Honor, Honesty and Ethics

By: Bill Whitmar, Laboratory Director

The Missouri State Public Health Laboratory has had the great fortune of acquiring several new staff members lately. Those people bring to us not only new faces, but also fresh outlooks, new ideas and increased diversity to our laboratory family. Welcome!

The Show-Me Challenge identified a gap in the Laboratory where our staff would like training in ethics. What's more, the S.C.O.P.E. group assigned to ethics training also thought it would be a great idea that I, as the laboratory director, speak to new employees about what it means to work here in terms of integrity, honesty, honor and ethics. Before I do that individually, I thought I would give the same speech to the entire laboratory in the form of this column.

Recently, as I exited a lunch establishment where I gained 1.47 pounds of body weight, I noticed that the door did not work as well as it should. Looking down, the door mat had folded over, catching the bottom of the door making it fairly hard for someone to open. Without thinking about it, I bent down and corrected the situation. No one was around to see me do it and no thanks was given or expected. I could have ignored the problem and expected that someone else would fix it, but didn't. Wasn't my door. Wasn't my restaurant. Why did I do it? So that others could open the door without trouble.

Why do I write this down? Am I some noble sort of person? No. Looking for accolades? Nope. I would like to think that



Bill Whitmar, MSPHL Laboratory Director

this situation is analogous to laboratory work in some small way. How? Technicians work in total, or relative isolation; there is the opportunity for omission of steps, shortcuts or leaving work to someone else. The documentation demands in a laboratory are enormous. "So what if a few temperatures aren't recorded, or if I just make up some numbers?" "This result is too close to call, how about if I just mark it as positive and not go through another battery of tests to get a result?" "I can't read this penmanship, I'll just enter something and the next person can correct it." These are the situations where one's **integrity**, **honor** and **honesty** come through.

Integrity is doing the right thing in the absence of others. You will find yourselves performing your duties when your colleagues and supervisors are visible. While it's true that we have methods, quality controls and other devices to guard against human error, there may still be that opportunity for ill intent.

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We as laboratorians cannot take short cuts, make up results or leave work for someone else. That is not in our credos, and that is not in the best interest for our clients, the citizens of Missouri. Those people are someone's children, spouses, parents, or grandparents.

Honor is that component of knowing that you are doing a job at a high degree of performance and in doing so you command a corresponding high degree of respect among your peers.

Your peers are everyone here in the laboratory, and your job here regardless of what it is, is worthy of that distinction of being honorable. Do not perform at a level that will be a dishonor to you, your unit and ultimately to the Laboratory as a whole.

Honesty should be self-evident. However, I will mention it as being central to our work throughout the

Laboratory. At every step, from the receipt of a specimen or sample through the result report leaving our building, maintaining honesty regarding your portion of the process is ever so critical. Be forthright, fair and of course do not ever be afraid to admit mistakes. Mistakes are inevitable and you will become a superior employee from admitting them and then from subsequently learning from them.

Blend these together into one behavioral culture and you obtain the basis for our code of **ethics**. This is our system of moral values, our code of beliefs. Further, we believe that our work is extremely valuable, is rooted in excellent science and validated methods and performed and supported by the best staff whose human conduct is above reproach. It is an honor to work with each and every one of you.

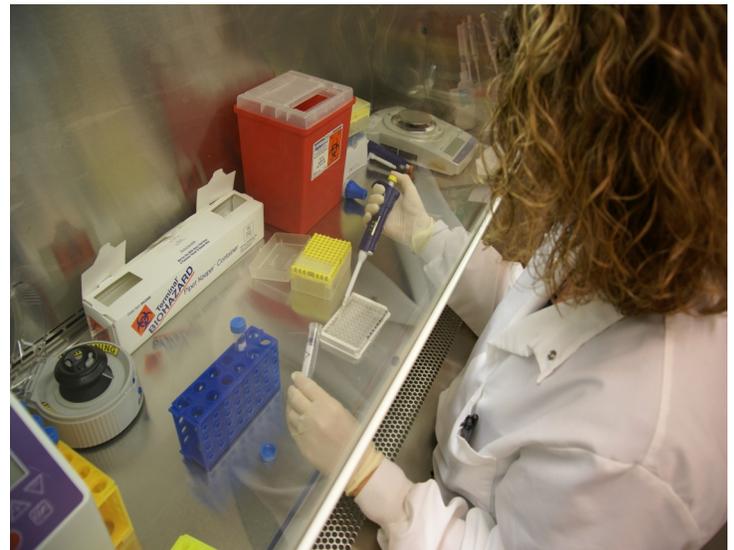
Bill

MSPHL Assists USDA with Inauguration Food Defense Assignment

By: Alan Schaffer, Chemistry Unit and Patrick Shannon, Environmental Bacteriology

Staff from the MSPHL recently participated in activities to help ensure the safety of the Presidential Inauguration. Prior to the start of the Presidential Inauguration in January, the U.S. Food and Drug Administration (FDA) activated the Food Emergency Response Network (FERN). Member laboratories were asked to help test a multitude of food samples for various chemical and biological contaminants. As a member of FERN, the MSPHL's Chemistry and Environmental Bacteriology Units volunteered to assist with this project.

One week before the inauguration, inspectors from the U.S. Department of Agriculture (USDA) Food Safety Inspection Service (FSIS) collected samples from various food suppliers. Twenty meat samples were shipped to the MSPHL for testing. The MSPHL Chemistry Unit analyzed the samples for arsenic and a chemical toxicant panel, while the Environmental Bacteriology Unit analyzed the samples for *Bacillus anthracis* and *Clostridium botulinum* toxins. Other laboratories participating in the project tested food samples from the same lots for additional chemical and biological analytes.



Ashley Mehmert, Environmental Bacteriology, prepares food samples for analysis.

MSPHL conducts first Customer Satisfaction Survey

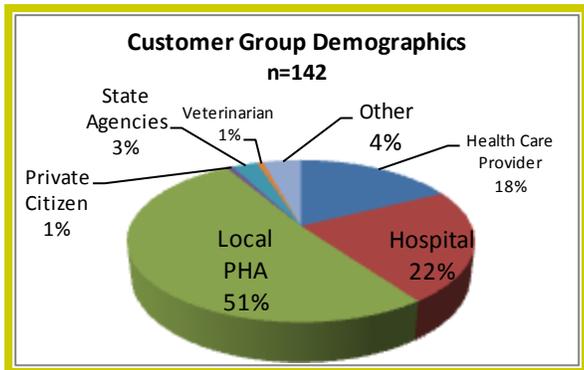
By: Customer Focus S.C.O.P.E. Action Team



As part of the S.C.O.P.E. Initiative quality improvement project at the MSPHL a Customer Focus Action Team was created to improve customer service. In order to improve customer service we needed to better understand the needs of our customers and to create a baseline evaluation of our services. This survey was

conducted during the month of September, 2012. Because it was difficult to determine how best to reach our customers to gain participation, a survey was developed and placed on our website. Slips of paper were added to mailing kits and result reports directing customers to the website. We are happy to report that the MSPHL received 142 responses.

“The state lab is awesome and so are all the employees...yeah you guys :)”



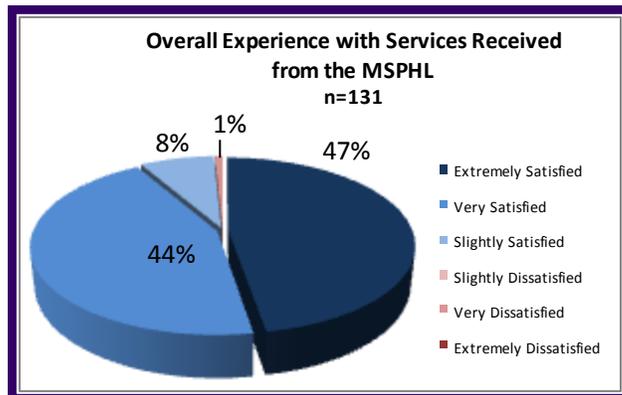
highlights from the survey include a 98% satisfaction rate (includes slightly, very or extremely satisfied) with the Laboratory’s courier service (n=112). 97% of respondents (n=136) were at least slightly satisfied with the knowledge of staff. Satisfaction for the overall experience and services provided at the MSPHL was 99% (n=131).

“It’s the greatest!” was a comment made by a customer when asked about the MSPHL Courier.

From the survey it appears that our customers want an alternative to receiving result reports by mail. According to the survey 55% of respondents

(n=140) still wanted to receive results by mail, but 41.4% selected Fax as an option and 27.9% and 22.1% stated email or secure website respectively. There were also several comments in the free text field that mentioned easier access to result reports. The MSPHL is currently working on several projects to improve the accessibility of result reports that will be faster than traditional mail. MSPHL will keep you updated on the progress as we develop those projects.

The MSPHL would like to thank everyone who took our survey. We value your opinion and have learned a lot about ourselves from your responses. As we improve we may send additional surveys to measure our performance. We appreciate your participation in advance. If you ever have a question or concern please feel free to contact the laboratory directly through email LabWeb1@health.mo.gov or call 573-751-3334 and we will be happy to help in any way we can.



MSPHL Staff Support Heart Disease



MSPHL Staff wore red on February 1st for the American Heart Association’s Nation Wear Red Day in support of the awareness of heart disease.



Acronyms used in Newsletter

ACMG – American College of Medical Genetics	IgG – Immunoglobulin G
AFB – Acid-fast Bacillus	IgM – Immunoglobulin M
AIDS – Acquired Immune Deficiency Syndrome	ILI-Net – Influenza-Like Illness Sentinel Site
APHL – Association of Public Health Laboratories	IRT – Immuno-Reactive-Trypsinogen
ASCLS – American Society for Clinical Laboratory Science	ISO – International Organization for Standardization
BEHS – Bureau of Environmental Health Services	ITSD – Information Technology Services Division
BS/BS – Biosafety and Biosecurity	LED – Light Emitting Diode
CAH – Congenital Adrenal Hyperplasia	LIMS-Laboratory Information Management System
CCHD – Clay County Health Department	LPHA – Local Public Health Agency
CDC – Center for Disease Control and Prevention	LRN – Laboratory Response Network
CERT – Center for Emergency Response and Terrorism	LSD – Lysosomal Storage Disorders
CF – Cystic Fibrosis	LTBI – Latent TB Infection
CH – Congenital Hypothyroid	MFRPS – Manufactured Food Regulatory Program Standards
CLIA – Clinical Laboratory Improvement Amendments	MMWR – Morbidity and Mortality Weekly Report
CLSI – Clinical and Laboratory Standards Institute	MoDOT – Missouri Department of Transportation
CMS – Centers for Medicare & Medicaid Services	MOLRN – Missouri Laboratory Response Network
COOP – Continuity of Operations	MSPHL – Missouri State Public Health Laboratory
DCPH – Division of Community and Public Health	MTD – Mycobacterium Tuberculosis Direct
DHS – Department of Homeland Security	NAA – Nucleic Acid Amplification
DHSS – Department of Health and Senior Services	NARMS – National Antimicrobial Resistance Monitoring System
DIS – Disease Investigation Specialists	NBS – Newborn Screening
DNA – Deoxyribonucleic Acid	NLTN – National Laboratory Training Network
DNR – Department of Natural Resources	OB – Obstetric
DPS – Department of Public Safety	PART – Post analytical reporting team
DSR – Department Situation Room	PCR – Polymerase Chain Reaction
EB – Environmental Bacteriology Unit	PFGE – Pulsed Field Gel Electrophoresis
EIA – Enzyme Immunoassay	PHEP – Public Health Emergency Preparedness
EiMF – Excellence in Missouri Foundation	PHIN – Public Health Information Network
ELC-ACA – Epidemiology and Laboratory Capacity-Affordable Care Act	PKU – Phenylketonuria
ELR – Electronic Laboratory Reporting	QSO – Quality Systems Officer
ELRN – Environmental Laboratory Response Network	RM – Results Messenger
EPA – Environmental Protection Agency	RNA – Ribonucleic Acid
EROT – Emergency Response, Outreach and Training	RUSP – Recommended Uniform Screening Panel
FA – Fluorescent Antibody	SCID – Severe Combined Immunodeficiency
FBI – Federal Bureau of Investigation	S.C.O.P.E. – Systematically Collaborating for Overall Performance Excellence
FDA – Food and Drug Administration	SDWIS – Safe Drinking Water Information System
FERN – Food Emergency Response Network	SEMA – State Emergency Management Agency
FSIS – Food Safety and Inspection Service	SIDS – Sudden Infant Death Syndrome
GSP – Genetic Screening Processor	SOP – Standard Operating Procedure
HHS – Health and Human Services	TB – Tuberculosis
HIV – Human Immunodeficiency Virus	USDA – United States Department of Agriculture
IACT – International Association for Chemical Testing	

New Testing Offered at MSPHL



- On January 15 the MSPHL started testing HIV specimens using 4th generation testing. With this technology HIV can be detected as early as 15-16 days post infection closing the “window period” by 6-7 days. Some things to remember: 1) draw a full tube of blood and label appropriately; 2) if possible, send the specimen to us within 3 days in the event that follow up testing is required; 3) avoid exposing specimens to extreme weather conditions (freezing or very hot temperatures). The MSPHL is excited to be able to offer the newest and most advanced HIV testing to its customers.
- The Molecular Unit now performs bacterial 16s gene sequencing analysis to identify unidentified bacteria and non mycobacterium tuberculosis. Samples are received from the Microbiology and Tuberculosis units.

Outbreak Investigation Requires Collaboration

By: Steve Gladbach, Microbiology Unit Chief, Patrick Shannon, Environmental Bacteriology Unit Chief and Stephanie Schildknecht, Molecular Unit Chief

Rarely is public health protection achieved by one group. Even inside of the MSPHL, often several units play a significant role in the testing, identification, reporting, etc., for any given outbreak. Obviously, the testing unit can only perform their function with the full support of Central Services, Post Analytical, and Administration. Often times several testing units also must work together to find a culprit for outbreak investigation. The following is an example of three of the testing units working together, along with the essential support staff, to help the Bureau of Communicable Disease & Prevention (CD) and the Bureau of Environmental Health Services (EHS) in the outbreak investigation.

Outbreaks always start out with a case, sometimes a family, an event, or an organization, but always at least a case. This particular case occurred when someone got sick enough with symptoms of diarrhea to go to the hospital. The hospital decided to collect and test a stool sample and it was positive for Shiga toxin (which is the toxin that is produced by STEC (Shiga toxin-producing *E. coli*), the most common of which is *E. coli* O157:H7. At this point the hospital is required to send the sample to the MSPHL and report their result to the Missouri Department of Health and Senior Services (DHSS).

When the MSPHL Microbiology Unit receives the sample the testing begins by the Molecular Unit testing the sample by PCR for the gene that causes Shiga toxin production. In this case the result was positive and the Microbiology Unit proceeded to plate out the stool sample to isolate, identify and serotype the specific STEC. Once these procedures are completed the isolate is given back to the Molecular Unit so that PFGE can genotype it and



A scientist plates bacteria as part of an outbreak investigation.



Example of a PFGE pattern that would be used to identify an isolate by DNA fingerprinting.

upload that DNA fingerprint to the national PulseNet database as well as report the information to the CD.

Epidemiologists in CD work with the Local Public Health Agency (LPHA) to investigate anytime there is a report of someone being sick with STEC. Often, the investigation starts with an interview of the sick person to determine possible scenarios of infection. In this particular event it was noted that the patient had eaten cheese made from raw milk (unpasteurized milk) that had been purchased.

Since a food product was implicated, the Environmental Bacteriology Unit was contacted as the third participating testing unit of the MSPHL to test the suspected cheese for possible contamination. The Environmental Bacteriology Unit received two samples of cheese representing opened and unopened sources with matching lots. The Molecular Unit then analyzed the cheese samples using PCR. When those tests were positive, the Environmental Bacteriology Unit was able to isolate and identify the STEC from the food samples. Subsequently, the Microbiology Unit performed serotyping and the Molecular Unit PFGE typing.

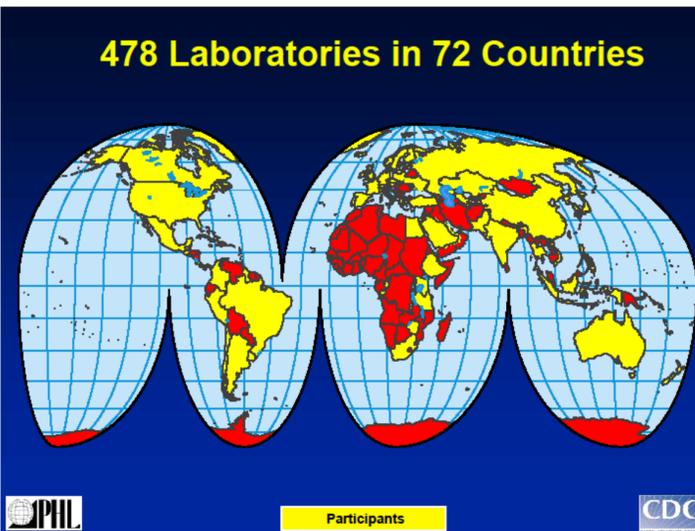
The patient isolate and two isolates from the cheese (unopened package as well as opened package) all had *E. coli* O26 isolated with a PFGE pattern that was identical for all three isolates. This means that the same organism found in the patient's stool causing the illness was found in the cheese, identifying the cheese as the source of the infection. All three units collaborated closely with CD, EHS, LPHA, FDA, and the Missouri Department of Agriculture to interpret the data, determine additional testing and complete the investigation.

The MSPHL is one significant cog in the machine of public health and often times inside that cog are lots of key players working together to provide answers and solutions to assist in Missouri's public health system. Outbreak investigation, often times involves several different units working together to get the job done. Every day the entire MSPHL works together to provide for the health and well being of the citizens of the state of Missouri.

Newborn Screening Celebrates 50 Year Anniversary!

By: Patrick Hopkins, Newborn Screening Unit Chief

Starting this year, states across the nation will begin celebrating 50 years of one of the most successful public health prevention and intervention endeavors since the small pox and polio vaccination programs! Newborn screening (NBS) is a vital public health service that saves or improves the lives of 12,000 babies born in the United States each year. This amazing process of screening mass populations for a treatable genetic disease began in 1963 when Massachusetts passed a law to screen all babies born in their state for Phenylketonuria (PKU). Each year after that, other states began passing newborn screening laws, and subsequently Missouri passed its NBS law in 1965. To date over 3.5 million babies have been screened in Missouri. Now, every state in the U.S. has an NBS law and screens for more than 25 disorders. NBS is the most efficient and most successful way to provide early detection for many rare but treatable disorders that need to be caught quickly after birth. The following is a historical background on how NBS got started and how it has progressed:

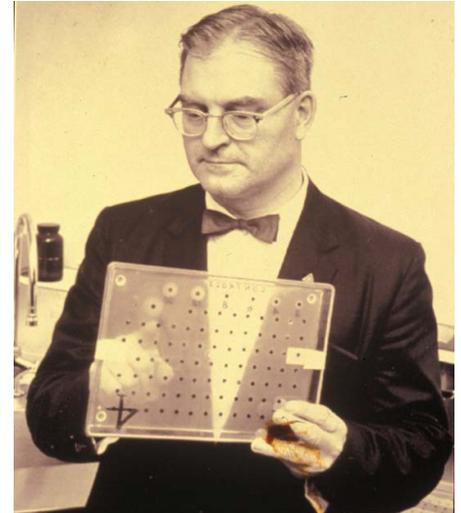


Newborn Screening is performed world-wide in 72 countries.

Figure courtesy of CDC.

- **1934: The discovery of PKU...** Dr. Asbjorn of Norway discovers that some of his mentally ill patients have high levels of phenylpyruvic acid in their urine, which shows a deficiency in an important enzyme to breakdown the amino acid phenylalanine. This deficiency is now known as Phenylketonuria (PKU).
- **1951: Discovery of Treatment for PKU...** A German physician, Horst Bickel, discovers a treatment for PKU. He proves that a low phenylalanine diet can control the intellectual and developmental delay, and seizures caused by PKU.
- **1960: Dr. Robert Guthrie invents a test for PKU...** Dr. Guthrie, an American cancer researcher who had a niece

with PKU, developed a simple and inexpensive bacterial inhibition assay which utilized a dried filter paper blood spot sample from a heel stick and could be used to screen for PKU in newborns and infants. For this achievement, he has been deemed the “Father of Newborn Screening”.



Dr. Guthrie, the Father of Newborn Screening, started what is now the most commonly performed genetic test in the world.

- **1963: Newborn Screening Begins...** After Dr. Guthrie published his findings regarding his very effective test and the results that early treatment can make, the state of Massachusetts passed the first NBS law to screen for PKU. Other states followed suit throughout the coming years.
- **1965: Missouri passes its first NBS law...** In the very beginning a few large hospitals began conducting PKU testing on their newborns. Since PKU was so rare, individual hospitals were unable to maintain proficiency in its detection and eventually missed cases. Many babies from smaller hospitals were not even screened.
- **1967: Missouri Department of Health takes over PKU screening...** The decision was made to require that all PKU testing was to be conducted by the State Public Health Laboratory for all babies born in the state, and so statewide PKU screening on all newborns was implemented in Missouri.
- **1979: Congenital Hypothyroid Screening Begins...** Treatment for CH is easy and inexpensive, and saves the affected newborns from severe developmental delays. CH is the second most common disorder detected in the NBS laboratory.
- **1985: Galactosemia Screening Begins...** Galactosemia presents the inability to breakdown galactose in milk and milk products. The disease is fatal within a few days or weeks after birth if undetected. That same year, **the Missouri Genetics Disease Advisory Committee was formed.** Legislation required this committee to form and advise the Department regarding the NBS program’s policies and panel of disorders.

• **1989: Sickle Cell Disease Screening Begins...** Screening for sickle cell disease and other hemoglobinopathies was implemented as it was determined that prophylactic treatment with penicillin highly reduced the mortality rate in affected infants.

This is the most common NBS disorder that we detect in the NBS laboratory.

• **2001: Hearing Deficiency Screening Begins...** Screening for hearing deficiency was added to the required NBS tests, however this is conducted at the hospital with special hearing sensitivity equipment designed for babies.

• **2002: Congenital Adrenal Hyperplasia Screening Begins...** Screening for CAH was implemented at the direction of the

Genetics Disease Advisory Committee and the expanded screening law. CAH is a defect in the pathway leading to the biosynthesis of cortisol, and can result in ambiguous genitalia in females and salt-losing crisis in either males or females. Early detection and treatment is essential to prevent death in infants with salt-losing CAH.

• **2005: Expanded Screening for Amino, Organic and Fatty Acid Disorder Screening Begins...** With the addition of the Tandem Mass Spectrometry multiplex testing method to the NBS laboratory, an additional 41 metabolic disorders were added all at once, including the PKU testing that was currently conducted as a stand-alone fluorometric assay. Also during this year the nationally Recommended Uniform Screening Panel (RUSP) was created by the American College of Medical Genetics (ACMG) and was endorsed by the March of Dimes.

• **2007: Cystic Fibrosis Screening Begins...** Shortly before the move into the new State Public Health Laboratory, Missouri added CF screening. Cystic fibrosis is a genetic disorder characterized by severe lung damage and nutritional

deficiencies. Early treatment can improve growth, improve lung function, reduce hospital stays and add years to life. CF is the third most common disorder detected in the NBS laboratory.

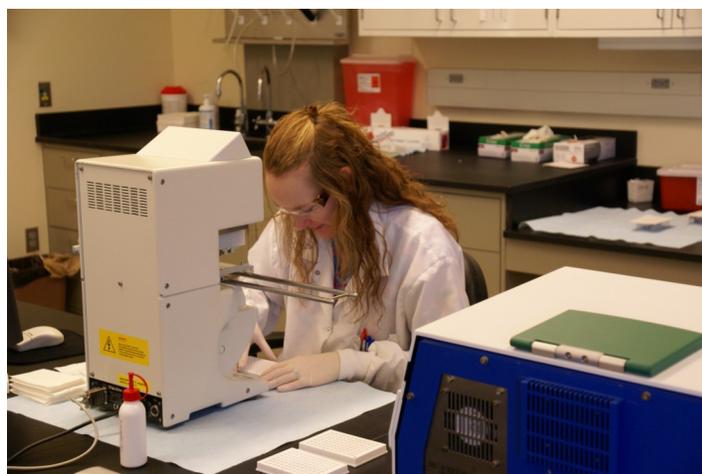
• **2008: Biotinidase Deficiency Screening Begins...** Biotinidase deficiency is a genetic disorder of impaired Biotin (vitamin B complex) usage and recycling. Children with profound deficiency, the more severe form of the condition,

often have seizures, weak muscle tone (hypotonia), breathing problems, and delayed development. Treatment for this disorder merely requires biotin supplementation and is easy and inexpensive.

• **2012: Lysosomal Storage Disorder Screening Begins...** Screening for Krabbe Disease begins in August of 2012 in response to the Brady Alan Cunningham Act. The testing is temporarily being contracted out to the New York State NBS Laboratory, which is the

only other State laboratory screening for Krabbe. The implementation phase for four other LSDs (Pompe, Gaucher, Fabry and Hurler Diseases) began in January of 2013. MSPHL is the first State laboratory in the country to provide statewide screening and follow-up for these four LSDs.

Disorders Detected by NBS in Missouri		
Disorder	Years of Screening	Babies Saved
PKU	46	215
Hypothyroidism	34	1,156
Galactosemia	28	53
Hemoglobinopathies	24	1,119
CAH	11	45
Amino Acid (non-PKU)	8	24
Fatty Acid	8	112
Organic Acid	8	55
Cystic Fibrosis	6	142
Biotinidase Deficiency	5	56
LSD	7 months	9
Total =		2,986



Amy Hagenhoff, Newborn Screening, prepares samples for analysis

Bonnie Ricks Named MSPHL Employee of the Quarter

By: Roy Tuua, TB Unit Chief and S.C.O.P.E. Workforce Action Team Leader

The MSPHL selected Bonnie Ricks as its first laboratory employee of the quarter January 1, 2013. The honor has been bestowed upon this individual, selected among a number of candidates, for her championed efforts of expanding the Newborn Screening Unit's testing capabilities. Bonnie has worked implementing second tier testing for cystic fibrosis (CF) by completing an extensive validation study for DNA mutation testing for 40+ CF mutations, developing the standard operating procedure (SOP) and indirectly becoming the technical expert for the new testing assay.

Prior to the development of this assay the Newborn Screening Unit evaluated newborn samples for elevated levels of immunoreactive trypsinogen (IRT). When the initial IRT levels were elevated a repeat newborn screen was required. If the second sample produced elevated IRT levels, the newborn was referred to a CF center for iontophoretic sweat chloride testing for diagnostic confirmation of CF. Although this testing algorithm was highly successful for the past five years, the methodology has a higher possibility for the occurrence of false positive or false negative results. The former can be a cause of anxiety for parents; the latter can result in delayed diagnosis. In an effort to increase the accuracy and sensitivity of the screening test the second tier mutation analysis for CF was added to reduce the amount of time necessary for detection, diagnosis and treatment of infants with CF.



*Bonnie Ricks, Newborn Screening, 2013 quarter one
Employee of the Quarter*

Bonnie exhibited passion, professionalism and tremendous effort throughout the whole process knowing the addition of this second tier test would provide many benefits to Missouri's newborns, especially those infants diagnosed with CF. Earlier diagnosis and treatment would provide better outcomes for these individuals. Throughout the entire validation process, Bonnie remained calm and optimistic in the face of adversity.

MSPHL Detects Dual Influenza Infection

By: Jessie Bauer, Molecular Unit

The Molecular Unit recently tested a respiratory specimen that was found positive for both Influenza A/H3 and Influenza B. This specimen was received from an Influenza-Like Illness Sentinel Site (ILI-Net) in the Southwest District. The patient was a 12 year old female who had not received an influenza vaccination. This is the first time in 9 years of performing Influenza PCR testing at the MSPHL that a dual influenza infection has been detected. While not unheard of, dual influenza infections are relatively uncommon. When several types of influenza viruses are prevalent, as is the case with both Influenza A/H3 and Influenza B this season, it is possible for a patient to become infected with more than one type of influenza virus.

Once identified as a potential dual infection, the specimen was immediately referred to CDC for confirmation and genetic analysis. Two weeks later, a CDC report confirmed the initial result of Influenza A/H3 and Influenza B detected. Although Influenza activity is starting to decline nationally, it remains high in some parts of the country and may continue for some time. The CDC influenza website offers these influenza prevention tips: <http://www.cdc.gov/flu/protect/preventing.htm>



Jessie Bauer, Molecular Unit, performing Influenza testing.

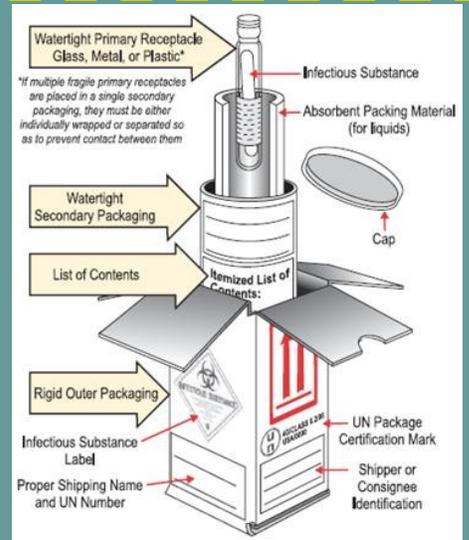
Packaging and Shipping Infectious Substances – An Overview

By: Amy Pierce, Training Coordinator

Proper packaging, shipping and documentation of infectious substance specimens are very important functions laboratories perform. Having trained and competent staff in these functions is necessary in order to be in compliance with federal regulations, avoid fines and protect laboratorians, transporters and the public from potentially dangerous exposures. **The shipper is always responsible for a package from the time it leaves the facility until it is received at its final destination.**

Here is a very brief look at some of the main points to remember when sending out an infectious substance:

Always use triple packaging – this applies whether the specimen is considered a Category A, Category B or exempt specimen. Triple packaging consists of a leakproof or siftproof primary receptacle, a leakproof or siftproof secondary package containing enough cushioning and absorbent material to contain and protect the specimen, an itemized list of contents and a rigid outer container that meets drop test and regulatory requirements. Also, certain pressure requirements must be met for specimens that will be transported by air.



Example of triple packaging

Use the correct markings and labeling – Be sure to classify the specimen correctly and use the proper infectious substance label. This includes the Proper Shipping Name and UN Number. Also required are the name and address of both the shipper and consignee (intended recipient) and the name and telephone number of the person who is knowledgeable of the package and will be responsible for answering questions about the package while it is in transport. This number should be monitored at all times required by the category to which the specimen belongs.

Document all necessary information – Certain specimens require a Shipper’s Declaration to accompany the package. Documentation is also required as proof that the shipper has been trained and is competent in the packaging and shipping of infectious substances. Understand when this documentation is required, be sure to include all relevant information and retain the documents for proper amount of time.

The MSPHL offers many opportunities to facilities around the state to attend “Packaging and Shipping of Division 6.2 Infectious Substances” trainings (see the training calendar link below). In addition, the MSPHL can be used as a resource for questions you may have about the shipping process.

The MSPHL training calendar can be found here:

<http://www.health.mo.gov/lab/pdf/erottrainingcalendar.pdf>

For questions about training or Packaging and Shipping questions contact:

Emergency Response, Outreach and Training

Phone: 573-522-1444

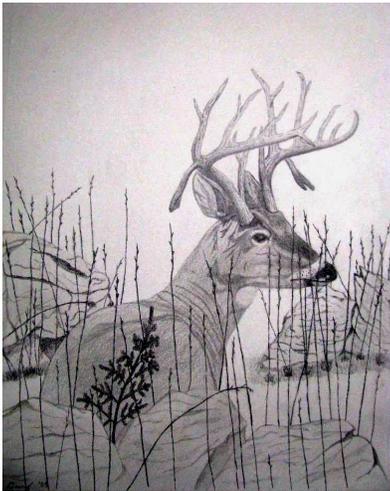
Email: SPHLEROTUnit@health.mo.gov

SHIPPER'S DECLARATION FOR DANGEROUS GOODS																							
Shipper				Air Waybill No.																			
Page of Pages				Shipper's Reference Number (optional)																			
Consignee																							
Two completed and signed copies of this Declaration must be handed to the agent.				WARNING Failure to comply in all respects with the applicable Dangerous Goods Regulations may be in breach of the applicable law, subject to legal penalties. This Declaration must not, in any circumstances, be completed and/or signed by a consolidator, a forwarder or an IATA cargo agent.																			
TRANSPORT DETAILS This shipment is within the limitations specified for:				Airport of Departure: _____ Airport of Destination: _____																			
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NATURE AND QUANTITY OF DANGEROUS GOODS (see sub-Section 8.1 of IATA Dangerous Goods Regulations)																							
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Dangerous Goods Identification	Class	Div	UN No.	Proper Shipping Name	Quantity and Nature of Packing	Packing Inst.	Authorization																
Additional Handling Information																							
Emergency Response Phone Number: _____																							
I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/stickered, and are in all respects in proper condition for transport according to applicable International and national governmental regulations.							Name/Title of Signatory _____ Place and Date _____ Signature (self-sticking device)																

Employee Spotlight: Russ Drury, EROT Director

By: Mary Menges, Assistant Laboratory Director

Whether on a soccer field coaching his kids' teams or participating in a S.C.O.P.E. meeting, Russ Drury loves working with and helping people. That love is what attracted him to his current career in Public Health. Recently, Russ accepted the position of Emergency Response Outreach and Training Director. Russ is excited at the prospect of working with Missouri's Sentinel Laboratories, state-wide preparedness partners and our own laboratory staff to expand and enhance our laboratory response capabilities.



A pencil drawing by Russ Drury

Raised in a military family, Russ is the son of a Marine Corp Officer. He was born in Quantico, VA, but has lived around the world in such places as North Carolina, Minnesota, Tokyo and Okinawa, Japan. While in Okinawa, Russ "fell in love" with scuba diving and also began a hobby of shell collecting. This experience led him to his keen interest in marine biology. Eventually, the family moved to Fort Leonard Wood, Missouri, where much to his dismay there was no ocean. He had to leave his marine life behind, but still pursued his dream and received a B.S. degree in Biology at Lincoln University.

Russ and his wife Jamie have three children; Brendan (13), Morgan (11) and Landan (5). The Drury family enjoys floating Missouri's scenic rivers and participating in competitive archery tournaments. Russ is very much into bow hunting deer and turkey. Russ is also an accomplished artist. According to Russ, "I'm getting pretty serious into pencil sketching animals, mostly white-tailed deer, because they fascinate me." He is so serious about his artwork that the Archery Big Bucks of Missouri contacted him to help redesign their certificates. Their new certificates consist of his sketches!

As you can see Russ is no stranger to adventure. If you ever have any questions about places to visit, you may just want to give Russ a call.



Russ Drury, EROT Director

Not just a Disease from Overseas: Three Domestic TB Outbreaks in Missouri

By: Roy Tu'ua, Tuberculosis Unit Chief

Historical records of Missouri active tuberculosis (TB) cases and the national average of reported TB cases in the United States in 2010 from the Centers for Disease Control and Prevention (CDC) indicate approximately 60% of TB disease cases occur among foreign-born persons. With the simplicity of air travel from countries where the prevalence of TB disease in the endemic population is high it is usually implied that infection was acquired before immigration and indirectly the root cause of domestic TB outbreaks. However, in 2012-2013 three outbreaks of *Mycobacterium tuberculosis* complex in Missouri as defined as an on-going transmission of two or more related cases of active TB disease have been identified in the endemic population. *M. tuberculosis* complex isolated in the TB Unit and Missouri hospitals were submitted to the CDC contracted genotyping laboratory at the California State Public Health Laboratory. Submitted TB isolates underwent a series of tests that successfully linked patients through matching genotype patterns, or DNA fingerprint, commonly occurring in congregate settings or close-knit communities.



The most recent TB outbreak identified five individuals with matching genotypes in a business which prompted

TB Outbreaks continued on Page 11...

LEANing into the Future

By: Laura Naught, Quality Systems Officer

The MSPHL recently hosted Sheila Moore, Workflow Consultant, from Abbott Laboratories to conduct a LEAN assessment on the Laboratory’s sample accessioning process. The MSPHL was one of three state and local public health laboratories that were selected for this opportunity by the Association of Public Health Laboratories (APHL) to participate in this LEAN project.

LEAN is a quality improvement tool that allows for maximizing productivity and efficiency from existing processes, people and systems by eliminating waste. Examples of waste include overproduction, unnecessary motion, transportation, inventory, and waiting. The MSPHL’s goals for this project were to examine ways to increase efficiency in its sample accessioning process, increase the ability to handle surges in testing, standardize sample processing procedures and break down resistance to change.

Ms. Moore visited the MSPHL for two days in late January and observed its sample accessioning processes by timing certain procedures, talking to staff and mapping out steps. On her return visit on March 1st she presented her findings by



making suggestions on what to do to eliminate waste and improve processes to increase efficiency and meet our goals. At the March 1st meeting we were also fortunate to have Karen Breckenridge from APHL and David Wells from Abbott Laboratories in attendance. Ms. Moore provided some excellent suggestions. Her main suggestion was to have MSPHL decrease the wait time from sample delivery to the units to the time the samples are accessioned in the laboratory. While some of the suggestions may take more discussion to determine the logistics of these changes, there a few things we can implement immediately.

The MSPHL is extremely grateful to APHL and to Abbott Laboratories for providing us the opportunity to have an outside prospective on our processes and we look forward to discussing these suggestions and working toward improving these processes by eliminating unnecessary and time-consuming steps.

LEAN in Practice

- Labs are clean and free of clutter
- Specimen shipping labels are color-coded for ease of sorting
- Storeroom is spacious and inventory well managed
- Instrument results are interfaced to LIMS wherever possible
- Non-interfaced test results are entered and verified by different scientists
- Critical patient demographic data is entered by two different people and checked for inconsistencies

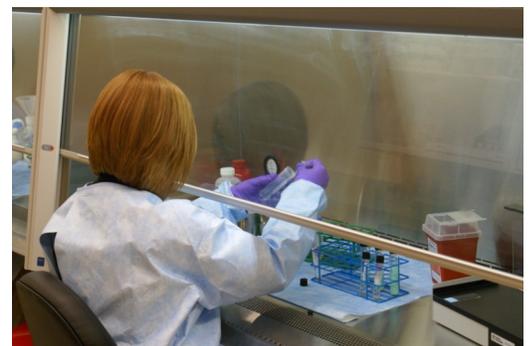
From Ms. Moore’s March 1st, 2013 presentation the MSPHL

...TB Outbreaks continued from page 10

the local public health agency in the region to expand its investigation to 200 employees. The remaining two were unrelated outbreaks occurring in staff at a common facility and substance abusers in a common home. TB outbreak investigations conducted between 2002-2008 with CDC assistance has revealed substance abuse as a significant contributing factor of outbreaks occurring in U.S.

One of the difficulties of identifying new TB disease cases in a community during an investigation is the stigma of TB disease. Consequently patients often become unwilling to share information. Another obstacle is patients who may have latent TB infection (LTBI) and forego prophylactic TB treatment. When these individuals become ill they believe the TB symptoms they are experiencing are attributed to allergies, cold, flu, or are misdiagnosed by physicians as pneumonia or bronchitis. These individuals may have unknowingly been transmitting the disease before they knew they were an active TB disease case.

Although TB is contagious, it is not easy to catch. You’re more likely to get TB from a family member or a co-worker than from a stranger as was the case with the three outbreaks acknowledged in Missouri.



Ashley Eiler, TB Unit, processes TB specimens

Lab Blab

Staff happenings in the Laboratory

New Employees

Lindsay Boyd, APHLS Environmental Bacteriology, **Alexis Haslag**, APHLS Newborn Screening, **Brandy Schafer**, APHLS Chemistry, **Nicoschia Roadruck**, Fiscal-Account Clerk II, **Clayton Toebben**, Central Services

Promotions

Russ Drury, Emergency Response Outreach and Training Director
Adam Perkins, Senior Public Health Laboratory Scientist, Microbiology
Fran Thompson, Senior Public Health Laboratory Scientist, Chemistry
Joel Williams, Senior Public Health Laboratory Scientist, Newborn Screening



Conferences and Trainings

Several Laboratory Staff members from the **EROT, TB, Microbiology, Environmental Bacteriology, Molecular** and **Central Services** Units gave a lab Services training in St. Joseph, MO for Local Public Health Agencies in March.

Jessica Meller, Jessica Connell, Bill Whitmar, Theresa Driver, Mindy Rustemeyer, Carlene Campbell, Fran Thompson, Pat Olson, Ashley Mehmert, Mary Menges, Shondra Johnson, Jackie Pfenenger, Clayton Toebben, Darla Eiken, Amy Peirce, Dianne Veasman, Lindsay Boeckman, Nicole Farnsworth, Natasha Voss, Lindsey Brandl, Russ Drury, Adam Perkins, Melissa Walker, Melissa Reynolds, Julie Buckley and Kristina Cramer attended an all day 'Leader in You' training held at MSPHL.

Steve Gladbach, Jackie Pfenenger, Brian Inman, Charlie Jameson, Stephanie Schildknecht, Clayton Toebben, Lindsey Brandl, and Laura Naught attended Packaging and Shipping of Division 6.2 Infectious Substances training.

Bill Whitmar, Director, attended Select Agent training in Atlanta, GA

Stephanie Schildnecht, Molecular Unit Chief, attended the LRN National Meeting in Denver, CO

Laura Naught, Quality Systems Officer, attended ISO 17025 Internal Auditing Training in St. Petersburg, FL

Amy Hagenhoff, Newborn Screening, participated in GSP Galactosemia training and CF DNA Molecular training at the MSPHL

Lacey Vermette, Newborn Screening, participated in CF DNA Molecular training at the MSPHL

Nicole Ayres, Immunology, Attended Architect i1000 training in Dallas, TX

Dana Strope, Immunology Unit Chief, HIV Diagnostic Conference in Atlanta, GA

Alan Schaffer, Chemistry Unit Chief, attended FERN Gamma Spectrometry Interpretation course at the Washington FERN Training Center in Shoreline, WA and the Fall 2012 Level One LRN-C Meeting in Arizona.

Alan Schaffer, Mindy Rustemeyer, Fran Thompson, Julie Buckley, Sondra Kekec and Brandy Schafer, all of the Chemistry Unit, attended a five day Apex Gamma Software training at the MSPHL.

Debbie Burnette and Michelle Rodemeyer, both Fiscal, attended the Association of Governmental Accountants Conference & Membership Seminar in Jefferson City, MO

Pat Shannon, Environmental Bacteriology Unit Chief, attended and presented to the Missouri Environmental Health Association Annual Education Conference, Lake Ozark, MO

Leon Luebbering, Environmental Bacteriology, attended the Missouri Dairy Fieldmen's Annual Education Conference in Jefferson City, MO

Jeremy Wilson, Environmental Bacteriology, attended the Confirmatory Techniques for FERN Methods training course in Shoreline, WA

Robyn Carrender, Natasha Voss, Lindsay Boeckman and Connor Mahon, all of PART, attended Records Management Digital Preservation workshop at the Secretary of State's office, Jefferson City, MO.



Nicole Ayres, Immunology, received her Master's in Public Affairs through the Harry S. Truman School of Public Affairs, University of Missouri-Columbia, MO in December 2012

Congratulations!

Thank you for your years of service

Years of service as of July 1, 2012 through December 31st, 2012.

25 Years

Patrick Shannon

(Environmental Bacteriology Unit Chief)

20 Years

Alan Schaffer

(Chemistry Unit Chief)

15 Years

Dana Strope

(Immunology Unit Chief)

10 Years

Jessie Bauer (Molecular Unit)

Julie Buckley (Chemistry Unit)

Jeremy Wilson

(Environmental Bacteriology Unit)

5 Years

Amy Hagenhoff (Newborn Screening Unit)

Joel Williams (Newborn Screening Unit)

Over the past 14 years **Steve Hynes** had served in various roles from Microbiology to Director of EROT. Steve has now taken on a new adventure outside of the laboratory with the University of Missouri. Still using his safety skills, Steve is the Manager of Biosafety for the Department of Environmental Health and Safety. We wish Steve well in his new job with the University.

David McGovney of the Chemistry Unit recently retired after 28 years with the MSPHL. Dave began his career at the MSPHL in 1984 in the Newborn Screening Unit. He transferred to the Chemistry Unit as a Senior Public Health Laboratory Scientist in 1989 to develop methodologies in mass spectrometry for the unit. Dave was instrumental in developing and maintaining numerous mass spectrometry and volatile organic chemical methodologies in the Chemistry Unit, as well as, providing natural skills and talent in laboratory instrument service and repair. Dave is currently pursuing a new career in the nursing profession. We wish Dave the best in his new endeavors and thank him for his 28 years of service to the MSPHL. .

Editorial Board for *Beyond The Scope*

Shondra Johnson, Sandy Jones, Mike Massman, Mary Menges, Laura Naught,

Amy Pierce and Bill Whitmar



Central Dairy established this ice cream parlor and dairy plant in 1932 in Jefferson City. While now owned by Prairie Farms this historic ice cream parlor is still operational and a popular spot year round. With summer approaching we recommend stopping by for one of their famous banana splits.

Missouri State Public Health Laboratory

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or

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