



# Beyond the SCOPE

A publication of the Missouri State Public Health Laboratory



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## Our New Mission

By: Bill Whitmar, Laboratory Director

***"The Missouri State Public Health Laboratory is dedicated to promoting, protecting and partnering for health by delivering quality public health laboratory services."***



Bill Whitmar, MSPHL Laboratory Director

The statement above is the laboratory's new mission statement. Through a series of thought-provoking meetings, the Process Management SCOPE Group has crafted this new statement.

Far from being a string of buzzwords, a mission statement defines what an organization is and why it exists. Take another look at our new mission statement now. Notice how elegantly it captures the essence of our profession, our product and how we affect our sphere of influence.

What makes our new mission statement so powerful is that each word or phrase is important and is informative to the reader and to our customers. Let me explain thusly:

**Dedicated:** our business is committed and devoted to the laboratory profession

**Promoting:** sponsoring, encouraging, promoting public health and laboratory services

**Protecting:** defending, shielding, protecting the public from disease and contaminants

**Partnering:** associating, collaborating, affiliating, think of all the partners we collaborate with daily

**Health:** well-being, strength, fitness, a condition that is, or should be well. We strive to contribute to wellness in the population

**Delivering:** conveying, reporting, distributing of disease reports and professional consultation to partners so as to stem disease transmission and environmental contamination

**Quality:** superior, excellent, highest value of product

**Public Health Laboratory Services:** laboratory-based analyses that provide health based data for population health interventions

This mission statement will be utilized as the first step in any strategic decision made by this laboratory. Look at the statement to see if what you are planning will fall within the broad mission of this fine institution. If not, then evaluate whether it has value here. During these lean times we can ill afford to work beyond the scope of our mission.

My profound gratitude is extended to the Process Management Group for their excellent work on this project. I hope that you will agree with me that this succinct mission statement identifies our work in a most excellent and most importantly, moral fashion.

Bill

MSPHL  
is Dedicated to Promoting,  
Protecting and Partnering for  
Health by Delivering Quality  
Public Health Laboratory Services

MSPHL mission statement is  
now visible when entering the  
facility.

## 2014 CLIA Audit



**Hooray!!**

The Centers for Medicare & Medicaid Services (CMS) regulates all laboratory testing, excluding research, performed on humans in the United States through the Clinical Laboratory Improvement Amendment (CLIA). The objective of the CLIA program is to ensure quality laboratory testing. We welcomed our CLIA auditors to the laboratory for our biennial CLIA audit from May 20<sup>th</sup> – 23<sup>rd</sup>. The auditor observed all aspects of the laboratory including the pre-analytical, analytical and post analytical units.

We are proud to share that we had only one very minor deficiency and corrective action has already been taken to address the deficiency. On June 18<sup>th</sup> we received notice that our CLIA Certificate had been officially renewed for two more years. You can find a copy of the MSPHL's CLIA certificate on the [Laboratory's website](#) under 'Certifications' below 'Related Links'.

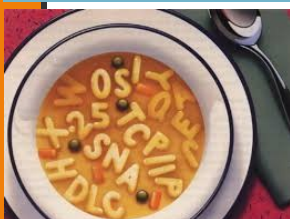
## MSPHL Southeast Branch Laboratory Ceases Water Testing Operations

The MSPHL stopped water testing operations at the Southeast Branch Laboratory on October 1, 2014. All water laboratory operations and staff were transferred to the MSPHL in Jefferson City. The MSPHL Breath Alcohol Program will continue operations in Poplar Bluff.

It is intended that all customers of the Southeast Branch Water Laboratory may continue to use water testing services at the MSPHL in Jefferson City without interruption of services. The MSPHL operates a free courier service that picks up laboratory samples Monday through Friday at most county health offices and delivers samples overnight to Jefferson City for testing the next day. The MSPHL is committed to continuing to provide customers with the same timely and professional service they have come to expect from the MSPHL Southeast Branch Water Laboratory during this process and into the future.

## Acronyms

AFB - Acid Fast Bacillus	MSDS—Material Safety Data Sheets
APHL – Association of Public Health Laboratories	MSPHL – Missouri State Public Health Laboratory
CDC – Center for Disease Control and Prevention	OSHA—Occupational Safety and Health Administration
CSF—Cerebral Spinal Fluid	PART – Post analytical reporting team
CLIA – Clinical Laboratory Improvement Amendments	PCR – Polymerase Chain Reaction
COOP – Continuity of Operations Program	PHEP – Public Health Emergency Preparedness
DHSS – Department of Health and Senior Services	PPE—Personal Protection Equipment
DNR – Department of Natural Resources	QI—Quality Improvement
DPS – Department of Public Safety	rRT-PCR – Real time, reverse transcription polymerase chain reaction
EB – Environmental Bacteriology Unit	SARS—Severe Acute Respiratory Syndrome
EiMF – Excellence in Missouri Foundation	SDS—Safety Data Sheet
EMAC—Emergency Management Assistance Compact	S.C.O.P.E. – Systematically Collaborating for Overall Performance Excellence
FBI—Federal Bureau of Investigation	SEMA—State Emergency Management Agency
ITSD—Information Technology Services Division	SPHL – State Public Health Laboratory
LIS—Laboratory Information System	TRF—Time Resolved Fluorescence
LPEs – Laboratory Preparedness, Education and Safety	USPS – United States Postal Service
LRN – Laboratory Response Network	WHO – World Health Organization
MGIT—Mycobacteria Growth Indicator Tube	
MOLRN—Missouri Laboratory Response Network	



## Environmental Bacteriology Unit Assists State Manufactured Food Program in Implementing Voluntary Federal Standards

By: Pat Shannon, Manager, Environmental Bacteriology Unit

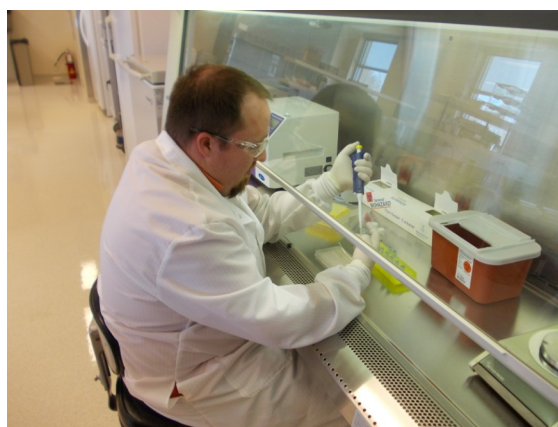
“The Manufactured Food Regulatory Program Standards (MFRPS) are a set of standards developed by the FDA, along with selected state program managers, that can be used by the states as a guide for continuous improvement for state food manufacturing programs. The goal of the standards is to leverage resources and share common successes to build systems within state regulatory food programs. The standards promote development of a high-quality state manufactured food regulatory program and include a process for continuous improvement. Gaps are identified, improvement plans are developed and strategic goals are identified. The areas of focus include regulatory foundation, training, inspection programs, auditing, food defense, enforcement and compliance, stakeholder outreach and laboratory services. States choose to implement the Manufactured Food Regulatory Program Standards (MFRPS) as an option under their state food inspection contracts” (taken from [www.fda.gov/ForFederalStateandLocalOfficials/PartnershipsContracts/Overview/](http://www.fda.gov/ForFederalStateandLocalOfficials/PartnershipsContracts/Overview/)).

In Missouri, the responsibility for manufactured food safety falls to the Department of Health and Senior Services (DHSS) Bureau of Environmental Health Services (BEHS). The BEHS Manufactured Food Program has been involved with the MFRPS for seven years; first as a pilot state as the standards were being developed, and since the publishing of the formal standards in 2010, as an FDA grantee actively working towards implementing the standards.

The MSPHL Environmental Bacteriology (EB) Unit collaborates with the Manufactured Food Program to assist the Program with meeting two of the standards. Standard 4 – Inspection Audit Program requires the state manufactured food program to perform field audits of plant inspections and desk audits of staff inspection reports. In addition, Standard 4 requires the program to have a manufactured food sampling program in place and to audit the sample collection reports. In early 2014, EB Unit staff met with Manufactured Food Program staff to develop a formal sampling plan that would have Program staff at various locations around the state collect manufactured, ready-to-eat food samples from retail stores or manufacturing facilities and submit these samples to the MSPHL for pathogen testing. The plan calls for the submission of more than one-hundred routine surveillance samples annually. These samples are tested for the pathogens *Salmonella*, *Listeria* and *Escherichia coli* O157:H7 using the polymerase chain reaction (PCR) molecular detection method. Samples that test positive by PCR are cultured to determine viability of the pathogens, and to provide isolates for further biochemical and molecular characterization. This is the first sustained surveillance program for manufactured food in Missouri. Laboratory staff will also assist the Program with meeting the requirements of Standard 4 by performing record audits of sample submissions to ensure sampling protocols are followed and that required sample data is reported.

The second standard that the EB Unit assists the Program in implementing is MFRPS Standard 10 – Laboratory Support. This standard requires the state manufactured food program to have ready access to a full service food laboratory that has a quality system in place which meets the accreditation requirements of the International Standards Organization’s ISO 17025 Standard. The MSPHL EB Unit has been working towards achieving ISO 17025 accreditation status through a five-year FDA grant. The EB Unit recently began the third year of this grant and anticipates applying for accreditation for up to ten food pathogen test methods in the first half of 2016. One of the year two deliverables for the grant was for the Laboratory to ensure that the Manufactured Food Program that it supports meets MFRPS Standard 4 by assisting the program in developing a sampling plan. By including this requirement in two grants the FDA ensured that surveillance sampling and testing, a critical component of the manufactured food safety program, would be established in its grantee states.

Through these collaborative efforts, the DHSS Manufactured Food Program and the MSPHL EB Unit help to ensure the safety of the State’s manufactured food supply, thus protecting the health of Missouri consumers.



Jeremy Wilson, Environmental Bacteriology prepares samples for testing.

## MSPHL’s Continuing Journey towards Performance Excellence

By: Shondra Johnson, LIMS Administrator and Laura Naught, Quality Systems Officer

In the September 2011 *Beyond the Scope* newsletter Director Bill Whitmar discussed the MSPHL’s participation in the Show Me Challenge self assessment through the Excellence in Missouri Foundation (EiMF). This article and subsequent articles in *Beyond the SCOPE* newsletters have described our efforts in addressing the findings of the Show Me Challenge assessment by the development of the S.C.O.P.E. Initiative. Over the past three years the S.C.O.P.E. Initiative Action Teams have developed and implemented numerous projects to improve the Laboratory’s business practices using the Baldrige model.

In March the laboratory participated in a re-assessment of its business practices called the Show Me More. The process was similar to the Show Me Challenge assessment completed in 2011 but went more in depth into the Baldrige criteria than in the past. Each self-assessment team interviewed the Executive Management Team (EMT) and 91% of the laboratory staff asking more detailed questions that covered the six Baldrige categories of Leadership, Strategic Planning, Customer Focus, Measurement, Workforce and Operations. The interview results from the EMT were then compared to the interview results from the laboratory staff by Mr. Bob Dorste with the EiMF. Mr. Dorste provided invaluable feedback in the final feedback report and presentation. The reassessment confirmed **tremendous** improvement throughout the Laboratory thanks to all of the dedicated staff that improved upon what was already the great work they do every day. As the laboratory’s consultant stated “we looked like an entirely different business” from 2011 due to the vast improvements the S.C.O.P.E. Teams and staff have done to make it happen.



Brian Inman, Central Services, Roy Tu’ua, TB conduct an interview with Bill Whitmar, MSPHL Director, for the Show Me More assessment.

The results summary below shows great improvement in three categories from 2011 to 2014 with Customer Focus and Workforce jumping two Baldrige scoring bands. Note that with this assessment the highest scoring band we could receive was 50-65%. While Leadership, Measurement and Operations give the appearance of showing only minimal improvement, in 2011 we were at the low end of the scoring band and now we are at the high end.

	Show Me More (2014)	Show Me Challenge (2011)
Leadership	30-45%	30-45%
Strategic Planning	<b>30-45%</b>	10-25%
Customer Focus	<b>50-65%</b>	10-25%
Measurement, A & KM	30-45%	30-45%
Workforce	<b>50-65%</b>	10-25%
Operations	30-45%	30-45%



Show Me More Assessment Team: (Front Row) Laura Naught, Shondra Johnson, Amy Pierce and Sandy Jones. (Middle Row) Roy Tu’ua and Russ Drury. (Back Row) Brian Inman and Steve Gladbach.

The Laboratory is already addressing the suggested opportunities for improvement through several new initiatives that include:

- A reorganization of the MSPHL’s Strategic Plan
- The development of a communication plan
- Defining and measuring laboratory staff engagement
- Trending customer satisfaction and addressing dissatisfaction
- Improving MSPHL dashboards and metrics
- Continued work on breaking down silos

Funding for the Show Me More re-assessment was provided by the National Public Health Improvement Initiative grant through CDC that was awarded to the DHSS Office of Performance Management.

## SCOPE Feature: Customer Focus Action Team

By: Laura Naught, Quality Systems Officer



The MSPHL values its customers' opinions. The SCOPE Customer Focus Action Team's goal is to develop strategies for acquiring and maintaining customer satisfaction and feedback. The Action Team's focus is to develop, review and improve customer surveys as well as assist individual units in surveying a targeted customer group. They are also responsible for reviewing trends and assisting in addressing any potential opportunities for improvement due to results of the customer survey.

### What we have done in the past

- 2012 first ever MSPHL Customer Satisfaction Survey and Analysis
- 2012 and 2013 Environmental Lead Assessor Customer Survey and Analysis
- 2013 Newborn Screening Sample Storage Process Survey and Analysis
- 2014 update of the Environmental Lead Submission Form

### What we plan for 2014

- 2014 MSPHL Customer Satisfaction Survey and Trend Analysis
- 2014 Environmental Lead Assessor Customer Survey
- 2014 development of a submitter survey for the Chemistry Unit



SCOPE Customer Focus Action Team (L to R) Roy Tu'ua, Julie Buckley, Theresa Driver, Dana Strobe and Laura Naught. Clayton Toebben is not pictured.

## MSPHL Celebrates Lab Week

Instead of celebrating "National Laboratory Week" in April the MSPHL planned and produced "MSPHL Week" September 8<sup>th</sup>-12<sup>th</sup>: a week where we celebrate all that we do in this building to assist in the overall mission of public health, both locally and globally. Additionally, the celebration emphasized that the "We" is absolutely EVERYONE in this building. We function as a team where all roles are essential to the success of our mission statement: *Promoting, Protecting and Partnering for health by delivering quality public health laboratory services.* Events included:

- Lab wide BBQ where The Director, Assistant Director and Deputy Director grilled hotdogs and hamburgers and many others brought wonderful sides and desserts while lawn games were provided during the lunch hour. There was also **Biohazard Monday**, where employees wore orange to celebrate.
- **Crazy Hat Day** and during lunch we played **Labopoly**, which was a modification of a classic game that included fun laboratory trivia.
- Lab coat decorating contest where entries parade their creations down the runway for the **2<sup>nd</sup> Annual Lab Coat Fashion Show**. Congratulations to the Workforce Management group for winning **Best in Show** and the Immunology unit for winning **The People's Choice** award. There were also prizes given to the honorable mention awards for **Most Creative**, which was won by the Measures group and the **Big Bang Award**, which was won by the Chemistry unit for their lab coat designs.
- **Dress Like your favorite Decade Day** and movie day where the movie **Extraordinary Measures** was shown. The movie is about a family that fights to find a cure for the newborn disorder Pompe. Missouri is the only state in the country conducting a full population pilot for Pompe.
- **Favorite team shirt Day** and MSPHL week concluded with an **Ice Cream social** where the Lab coat winners were announced and awarded baked goods as prizes.

Thanks to everyone who helped make it such a rousing success and thanks to everyone in the MSPHL for everything you do every day to make this such a successful place of business and such a wonderful place to work!

## 96-Well...Laboratory Staff Members

By: Mike Massman, Deputy Director & Laura Naught, Quality Systems

No, not meaning a laboratory 96-well plate, but the 96 healthy staff members that make up the Missouri State Public Health Laboratory (MSPHL). No longer does a *run* mean testing samples; no longer does a *base* mean a helical genetic structure; a 5K isn't a temperature; and a *heat* is not a product of an exothermic reaction. Personal wellness activities are abounding all over the laboratory these days. From organized zumba and exercise videos during lunch periods to individuals simply walking in the parking lot or on sidewalks when they have an opportunity on a break or heading straight to the gym after work, these events are becoming the norm in the laboratorian's daily routine.



Lab Employees Fran Thompson, Erica Vaughn, Mindy Rustemeyer, Lindsay Boyd, Tom Boyd and Brian Inman participated in the Jefferson City Color Run in April.

Boyd of Central Services, is a leader in logging the most miles in all of DHSS for this program with over 3000 miles logged.

Most illustrious of the laboratory health and fitness activities is the official laboratory softball team, the Lab Animals. A grueling 2014 season filled with hits, runs and outfield collisions culminated in the Lab Animals as the 2014 champions of their class in the Jefferson City Parks and Recreation Softball League. Many laboratory staff rallied the team throughout the season and gathered to inspire and participate in festivities at the championship game. No Lab Animals were purposely harmed during these events. Also on base in 2014, was another successful softball team that consisted predominately of various laboratory staff members. Being the team's first year in the league, this team also made strides in addition to the strikes.

Working out on a different field of dreams are the several laboratory staff that make up a large percentage of the Missouri Department of Health and Senior Services (DHSS) Golf Team. Currently four laboratory golfers, of the Department's seven person team, compete against other state departments in a weekly golf league during the summer months. The 2014 DHSS golf team finished in the top 10 of the 30+ team league and landed two laboratory golfers in the end of the year golf playoff. The laboratory has certainly made its mark on this golf card.

In addition to individuals participating in laboratory group or work-supported wellness activities, many laboratory staff are extremely dedicated to competing in various events on their own to better their overall health and fitness. In the past year alone laboratory staff members have competed in 5K's, triathlons, half marathons, tough mudders, biking, softball, volleyball, tennis, golf and basketball at venues locally and statewide; including the Show Me State Games. The laboratory even boasts having a certified Iron Man in Tom Boyd.

With all of these activities taking place, an awareness of the importance of health, fitness and general well-being is being emphasized at the laboratory. Individuals are literally motivating fellow staff members to partake in wellness activities just by participating in them themselves. Water cooler discussions are now not just the latest about a professional team or athlete, but now about what laboratory teams and athletes might be up to. Laboratory staff are literally *running* all over the laboratory each and every day.



(L to R) Dennis Schmitz, Mary Menges, Adam Perkins and Steve Gladbach make up the DHSS golf team.

## Employee Spotlight: Tom Boyd, Central Services

By: Brian Inman, Central Services

If you are ever out on the Greenway or the Katy Trail, chances are you have seen Tom Boyd there as well. Tom is an avid runner – trail and road, biker – mountain, trail and road, swimmer, weight lifter, and enjoys playing softball and basketball. Tom has competed in several different races and runs over the years including the big one, Iron Man Triathlon at Louisville Kentucky in 2011, which in case you don't know consist of a 2.4 mile swim, a 112 mile bike, and a 26.2 mile run! He completed the event impressively in a little over 14 hours. He is currently training to compete in a half Iron Man in the spring of 2015 and another Iron Man in the fall of 2015. He has also taken part or competed in lots of other events over the past couple of years including: Tough Mudders, Warrior Dashes, several 5 K's (including some fun color runs), the Fulton Triathlon, 5 mile St. Patrick's Day race in St. Louis, MS 150 charity Bike, MO Bike, and one of his newest favorite races, the Macklin Mile in St. Louis. Tom trains every day except Sundays to be healthier and to stay in shape, since as he says "urbanization makes us soft".



Tom Boyd, Central Services.

He is an inspiration with his relentless pursuit of being healthy and active. He gets up before the sun to start his day with a good workout at "Tom's house of Pain" and will get in an hour or two run or bike after work. Tom believes the more active you are the more you have to feed the machine, realizing whatever calories you put in you have to use them up throughout the day.

Tom started with the Central Services Unit of the MSPHL in July 2013. He is one of the fine folks responsible for sorting and delivering incoming specimens, processing and shipping test kits, and packaging and shipping dangerous goods. Tom has lived in or around Jefferson City for most of his life, participating with the Barracuda Swim Team throughout high school and graduating from Jefferson City High. He joined the U.S. Army after high school as an Army Recon Scout serving in South Korea and Afghanistan in addition to being stationed in several bases here at home. After getting settled back home in 2006 Tom started taking classes at Lincoln University. He has been married to "the love of his life", our very own Lindsay Boyd (Environmental Bacteriology), for three years. Tom has a 10 year old daughter – Lexi; three dogs – Dodge, Ira and Eleanor, and two cats – Axelson and Pearl, which keep him very busy when he isn't out "putting in the work".



Tom and his wife Lindsay, Environmental Bacteriology, after completing the 2014 Tough Mudder in Kansas City



(L to R) 2014 championship lab animals softball team, Laura Naught, Lindsay Boyd, Tom Boyd and Brian Inman participate in the Fulton, MO triathlon and Alan Jarrell prepares for a hit at a laboratory softball game.

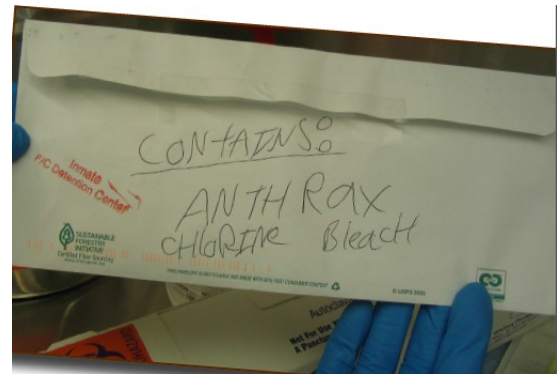
## Biosafety in the Laboratory

By: Russ Drury, LPES Director

Biosafety, a concept recently ripped from the headlines with the accidental anthrax exposure of 75 members of the workforce at the Centers for Disease Control and Prevention in Atlanta. How does this happen? Is anthrax testing performed at the MSPHL? How do they avoid exposure to staff and their surrounding environment? Unfortunately, exposure is always a risk when performing work in a biological or chemical laboratory. So long as humans are performing the work, there is always a chance of error or accidental release. Yes, the Missouri State Public Health Laboratory performs testing on anthrax and numerous other suspected biological and chemical agents of terrorism. The MSPHL has a complex variety of ways to protect its staff, its surrounding areas and the agents that are being tested.

The topic of biosafety may be unfamiliar to many, but at the Missouri State Public Health Laboratory it takes place on a daily basis. There are many levels of protection that the staff at the MSPHL are provided while performing their daily work. Training is the first line of defense for accidental exposures at the MSPHL. New staff undergo extensive training and multiple hours of observation before they are allowed to perform testing. This training involves not only proper laboratory techniques, procedures and protocols, but also includes the review of manuals and guidance documents to give the scientist information on the agents they will be working with. There are also ongoing trainings provided on a regular basis to keep the staff up to date on changes in safety procedures and lab practices.

The next level of protection is personal protective equipment, or PPE. Certain items of PPE are required to perform even the most basic testing. At a minimum, protective eyewear, liquid resistant lab coats and closed toed shoes must be worn for any level of testing or specimen manipulation. Certain agents do not require any more than these simple protections to keep the scientists safe. But as the severity of the agents they are working with increases, so do the required levels of PPE. Simply put, a person working with a *Salmonella* specimen will need to be extremely careful in the manipulation of the specimen to avoid contaminating themselves, but they do not require the same level of PPE as a person working with a tularemia specimen. Like anthrax, a tularemia specimen must be handled with great care and causes a much more severe illness than routine *Salmonella* and is also extremely easy to aerosolize or make airborne. Greater levels of PPE are a must when working with agents such as anthrax or tularemia in order to protect the scientist. The mandatory PPE for staff manipulating these cultures is a full body Tyvek suit, dedicated footwear that is always kept in a specific location inside the Laboratory and used only for this purpose, double layers of rubber gloves and a battery



powered air purifying respirator (PAPR) that is housed inside a hood with a clear face shield. Essentially, this entire suit is a protective layer for the scientist to keep the agents they are working with away from the person, so long as the suit is not compromised. There is a VERY specific protocol for donning and doffing this suit to guarantee the maximum level of protection during use, and then to avoid self contamination upon removal of the suit that must be followed. The suits are only used one time and then decontaminated and discarded.

There are also mechanical devices that can be used to protect scientists. Most agents tested at the MSPHL can be tested out on the regular counter (bench) space in the laboratories. So long as the scientist uses good laboratory technique and the proper PPE, they should be perfectly safe working on the bench. Like the example given previously, *Salmonella* can be safely manipulated on the counter top. Agents of bioterrorism require extra safeguards to offer proper protection to staff. The MSPHL requires that all testing for agents of bioterrorism (tularemia, anthrax etc.) be performed in a biological safety cabinet (BSC). A biological safety cabinet is a large piece of equipment with a glass sash on the front that has a self-contained air flow mechanism. Once turned on, a BSC operates on negative air pressure. The cabinet sucks air in from the outside and into the cabinet and begins circulating the air within the BSC. This negative air pressure keeps any possible contaminants from reaching the outside of the cabinet and helps protect the scientist. The circulated air from the BSC is moved into the internal air handler and passes through a high efficiency-particulate air (HEPA) filter that filters out any microbes present before either exhausting back into the lab or into the building's air handling exhaust, depending on how it is ducted. The combination of PPE and the BSC give the scientist a very high level of protection. The rooms that contain the BSCs where work is performed on possible agents of bioterrorism as well as tuberculosis have very controlled and limited access. Once a scientist has started work inside the BSC, other staff do not enter the room until all work in the BSC is complete.



...Biosafety article continued from page 8

Due to the nature of these agents, they are also fully decontaminated by autoclaving before they are removed from the laboratory space. This is vital for decreasing the likelihood of exposure. By killing the live organism before it is ever removed from the laboratory space, it is safe to transport the media used for testing to our waste management area. Although the media is still transported in a very safe fashion using a cart and plastic containers to contain any leaks, exposure to laboratory staff is significantly decreased since there is no living organism. The waste product is then transported to the Laboratory-wide decontamination rooms and then autoclaved a second time before it is removed from the building. Although this step is likely not necessary, it is an extra safeguard to prevent an exposure to the outside environment once the waste has been removed from the MSPHL.

The final safeguard offered to the Laboratory staff is the building design and air handling system. With the exception of the second floor, there are testing laboratories on every floor of the five floor laboratory. Each floor consists of an office space area and then a long hallway with entry doors to each of the testing laboratories separate from the office spaces. All of the principle hallways and laboratory spaces run on negative air pressure, which means the air from the hallways runs into the laboratory spaces at all times. A person in the hallway space between the labs is safe from any exposure risk from inside the laboratory space because there is no air flowing into the hallway area from any laboratory. Also, each of the office spaces inside the MSPHL are located directly on top of each other on their respective floors. The office spaces are “safe zones” in the event of a large scale biological or chemical release within the Laboratory. They are all connected to a single, dedicated air handling system with its own supply air and exhaust. They are in no way connected to the air handlers that service the laboratory space. In an event where staff and visitors are required to meet in the “safe zones” they will be perfectly safe and protected from exposure due to this air handling system. The system is also designed to protect the staff performing testing. Specifically in the laboratories where testing is performed on possible agents of bioterrorism, the air supply in the room is completely “turned over” in just under two minutes. So essentially the air they breathe when they enter the room is all completely gone and supplied with new air two minutes later. Any microorganisms that may be in the air resulting from testing would likely be swept out of the room and into the air handling system. The tuberculosis laboratory and select agent (bioterrorism agent) testing laboratories are referred to as Biosafety Level III (BSL III) laboratories due to the negative air pressure, the air handling systems, PPE requirements and the biological safety cabinets, as well as numerous other criteria. The BSL III laboratories are located on the same floor in the Laboratory. This floor,

much like the safe zones, has a dedicated air handler for its laboratory spaces and hallway. It has dedicated supply air, and a dedicated exhaust. All air that is exhausted from this air handling system is passed through a very efficient HEPA filter bank and then exhausted out through the roof of the building. The HEPA filter bank has a series of gauges measuring the amount of airflow that is coming through the filter bank. If the airflow gets below a certain level, the system is checked and the HEPA filters get replaced to assure they are functioning properly. This system helps ensure full containment of any dangerous pathogens. Laboratory maintenance staff check these gauges on a daily basis for flow rates, and historically the filters are changed BEFORE flow rates drop to the lower end of the acceptable range. Well, what happens in a power outage? The MSPHL also has an emergency power back up. The Laboratory is serviced by two large generators. In the event of a power



Jesse Meller, Molecular, performs biochemical testing in a biosafety cabinet.

failure, the generators are up and running within a matter of seconds and restore power to key services and mechanisms almost immediately. Negative air pressure is maintained in the process.

Biosafety is a critical piece of the everyday function at the Missouri State Public Health Laboratory. Through extensive training, the proper use of PPE, mechanical devices and the engineering designs of the Laboratory, the Laboratory staff and the public have a very high degree of protection. The staff at the Laboratory is by far its most valuable resource and they are provided with the most up to date protection that can be provided to ensure their safety no matter what biological or chemical agent they are working with. The MSPHL takes great pride in our exemplary safety record and we will do our best to continue the tradition of safety by always erring on the side of caution.

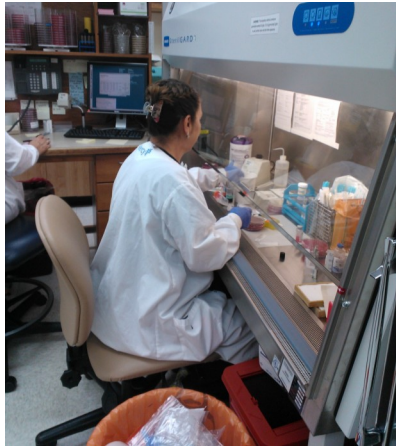
## MSPHL Partners In Action

### Mercy Hospital Microbiology Lab, Springfield, MO

BY: Sandy Smalley, MT(ASCP) Microbiology Supervisor

Our laboratory has been a part of the Missouri Laboratory Response Network for many years. In this capacity we have shared information and specimens with the Missouri State Public Health Laboratory (MSPHL) on occasion. This relationship has worked out well and I would encourage anyone to utilize the services and guidance provided by the MSPHL. The staff has always been extremely knowledgeable and helpful.

By far, our most common interaction with the MSPHL revolves around *Francisella tularensis*. Since *Francisella tularensis* is endemic in the Midwest, this may be the case for many of you as well. Late spring into early summer we all get a bit apprehensive and excited (there I said it!) as we await that first isolate of the year. As laboratorians, we try to remain vigilant throughout the year, with a heightened sense of awareness during this season. We've learned from past experiences not to rely on communication from the provider to "r/o tularemia" or even those classic sources or typical patient histories involving tick bites or rabbit exposure. This year, two of our isolates were recovered from sources unusual for *Francisella tularensis*, an eye and a fox bite.



Lorenza Perches, Laboratory Assistant, work up samples in a biosafety cabinet.

As a general rule, any isolate showing poor growth on blood agar and better growth on chocolate agar at 48-72 hours raises our suspicions and moves us to perform further analysis under the confinement of a biosafety cabinet. Within the confines of the biosafety cabinet, we prepare a slide for a gram stain and perform a catalase and oxidase test, expecting *Francisella tularensis* to have a negative (or very weakly positive) catalase reaction and a negative oxidase reaction. Although the gram morphology of most of the isolates we've seen are the typical, tiny, faintly staining, sometimes amorphous appearing gram negative coccobacillus, we've been fooled a time or two. On those occasions, the initial gram stain of the isolate was a well staining, small gram negative bacillus, typical of a haemophilus species. Only upon subculture, did the isolate gram stain look more typical.

Any isolate that meets the criteria above, we treat as a *Francisella tularensis* until we hear otherwise. At this point, we subculture the isolate onto a chocolate agar slant for submission to the MSPHL and make the appropriate notifications. This includes notifying the patient provider, Infection Prevention and the MSPHL. We also assess the culture to determine if a possible laboratory exposure had occurred. We obviously hope to minimize any exposures. But, in the case of a possible exposure, we immediately report and follow our institution's protocol, resulting in prophylactic treatment of any exposed coworkers.

Once the isolate is submitted to the MSPHL, we typically receive a preliminary identification within 24 hours, with a final identification shortly thereafter. That's when the real fun begins! Since *Francisella tularensis* is considered a potential agent of bioterrorism and is listed as a Select Agent, it is required that an APHIS/CDC Form 4A (Reporting the identification of a Select Agent) is completed and submitted. In addition, if there was a potential exposure, submission of an APHIS/CDC Form 3 (Reporting of Theft, Loss or Release of a Select Agent) is required. Personnel at the MSPHL are extremely helpful in providing the forms and guiding you through this process. For you older (or should I say more experienced!) laboratorians, we can remember a day when recovery of this isolate was just as exciting and important, but a bit simpler.



Kyla Dennis, MT(ASCP), reads cultures and enters results into the hospital LIMS.

## STD Outreach

By: Dana Strope, Immunology Unit Chief

Who would think that warmer temperatures, flowers blooming, trees budding, and STD testing would be associated together? The Immunology Unit that's who! For the past several years, CDC has termed the month of April as STD Awareness Month. The MSPHL takes part in doing this expanded testing with support and guidance from the MO DHSS Bureau of HIV, STD, and Hepatitis. During April, the normal screening criteria for chlamydia and gonorrhea (ct/gc) is waived and testing is provided to anyone who requests a test at the approved facilities enlisted in the testing program. Increases in HIV and syphilis samples were also noted during this time frame. Comparing April to May, an increase of 2,486 ct/gc samples were collected, 900 more syphilis samples, and 878 more HIV samples. Even with the increase of samples, positivity rates for the four infections remained consistent with the yearly average.

This past spring also brought about involvement with the "Man Up Monday" campaign. The University of Missouri, Columbia campus held testing events on five Mondays during February and March. These five testing events focused on ct/gc testing only. Urine collection devices and tips were supplied by Hologic – Gen-Probe. Staff from Rain-Central Missouri, Inc., the Bureau of HIV, STD, and Hepatitis, the Student Health Center (SHC), and Student Health and Sexual Health Advocate Peer Education (SHAPE) helped complete the paperwork, pipette urine, and label specimens. The SHC, RAIN, and Bureau staff also provided one-on-one risk reduction counseling for each participant. Bureau staff delivered the specimens to the MSPHL in order to shorten delivery time and expedite testing and turn-around times. Barriers and information on sexual health resources were also provided, and free treatment was distributed to chlamydia positives by RAIN and the University Hospital Pharmacies. This campaign was organized by a Master of Public Health student and the SHC and is being submitted for publication in the Journal of American College Health. The student that led this campaign is a former employee of the Immunology Unit. She states that her experiences in the laboratory sparked this interest and motivated her to make a difference in the community. She would have never pursued her Masters or even applied for her assistantship with the SHC had it not been for her experience at the MSPHL and seeing the sexual health disparities facing Missouri's youth. Approximately 335 ct/gc samples were collected during the "Man Up Mizzou" campaign yielding 32 chlamydia positives and 1 gonorrhea positive.

POSITIVITY RATE	
Chlamydia	9.6%
Gonorrhea	2.5%
Syphilis	2.9%
HIV	0.7%

Positivity rates seen from samples collected during STD Awareness Month, April, 2014.

The University of Central Missouri in Warrensburg also held two STD outreaches in March. Their total numbers tested for ct/gc were approximately 240 with 27 chlamydia positives and 1 gonorrhea positive. Students that attended these outreaches could pre-register making the wait time shorter since all the patient demographics were collected before the outreach. A test request form was pre-printed to help ease the paperwork process. The pre-registration only allowed the person to select one of the two clinics so no rescreening would occur.



Brian Flores (F) and Phil Schott (B) accession samples in the immunology unit.

All outreaches need to be approved through the Bureau of HIV, STD, and Hepatitis and appropriate funding needs to be secured before any promotion of the event can begin.

## Jessie Bauer Named DHSS Employee of the Month

We are pleased to announce that Jessica Bauer has been selected as the DHSS September Employee of the Month. Jessica is a Senior Public Health Laboratory Scientist in the Molecular Unit at the State Public Health Laboratory.

Stephanie Schildknecht, the nominator wrote, “Jessica Bauer is a senior scientist in the Molecular Unit. Jessica is in charge of all Viral PCR testing. When testing moved into the Molecular Unit she took charge of all the testing that was once shared between her and another staff member. She never complained that she was over worked and she always met her deadlines. Over the last couple of years Jessica has trained members of the Molecular Unit in different areas of Viral PCR. Training an employee takes extra time out of her already busy day. Jessica never complained about the extra work and stepped up to make sure everyone was trained properly.



*Jessie Bauer, Molecular Unit Chief*

Over the last year we have had several new and emerging diseases in the spotlight (Influenza H7N9, H3N2v, and MERS-CoV). Jessica has written the procedures, prepared the reagents and trained the staff on these new testing methods. Jessica has worked several hours on Saturdays to test these high priority samples when the need arose. I never have to worry about the testing; I know all I have to do is call Jessica and she will take care of it.

Now that Molecular employees are training in Viral PCR assays, Jessica is eager to start learning some of the other assays that she does not currently use. She is going to begin training on gene sequencing and LRN Bioterrorism methods.

Jessica is my right hand lady. She has taken on more responsibilities and is always willing to go the extra mile. When I am out of the office I know that Jessica will take care of anything that needs to be done. She produces high quality results time and time again.

Jessica is a dedicated, hard working employee who jumps in and helps with anything that is needed. Jessica has grown a lot over the last few years and has proven to be a great scientist and leader. I never have to worry about the quality of Jessica’s work. She is honest, ethical and follows all procedures accordingly.”

Jessica was honored with a reception on September 15th at the State Public Health Laboratory.



## Lab Blab



### New Employees

**Lindsay Boeckman**– Fiscal, **Melissa Brown**– Fiscal, **Erica Davis**-PART, **April Gatlin**-Central Services, **Brian Matheny**-PART, **Tiffany Needy**-Fiscal, **Nicoshia Roadruck**-Fiscal, **Matthew Sinn**-Virology, **Ashley Steeby**-Microbiology, **Sarah Tannehill**, Immunology, **Alicia Wieberg**-Administration, and **Amanda Williams**-PART.

### Promotions

**Jessie Bauer** was promoted to the Molecular Unit Manager

**Colleen Donahue** was promoted to a Accountant II

**Nicole Farnsworth** was promoted to a Health Program Representative I/II

**Erica Gaw** was promoted to a SOSA

**Conner Mahon** was promoted to a AOSA

**Michelle Rodemeyer** was promoted to a Fiscal & Administration Manager BII

### Conferences & Trainings

-**Michelle Rodemeyer**, Fiscal, attended a training on Managing Multiple Priorities, Projects & Deadlines in Columbia, MO.

-**Jessie Meller**, Molecular, attending a influenza course at the CDC in Atlanta, GA.

-**Adam Perkins**, Microbiology, attending the 2014 SWACM conference in Houston, TX.

-**David Byrd** and **Steve Gladbach**, Microbiology, attended a course on Evidence Based Decision Making in Public Health at St. Louis University Hospital, St. Louis, MO.

-**Shondra Johnson**, LIMS, and **Pat Shannon**, Environmental Bacteriology, traveled to the Iowa State Hygienic Laboratory with several people for MO DNR to observe their LIMS in Coralville, IA.

-Environmental Bacteriology Staff **Leon Luebbering**, **Pat Shannon**, **Ashley Mehmert** and **Melissa Reynolds** attended various meetings and conferences including the FERN National Workshop, Richmond, VA, FDA Southwest Regional Milk Conference, Portland, OR, Missouri Milk, Food and Environmental Health Association Annual Education Conference, Columbia, MO, FDA ISO CAP Grantees Face to-Face National Meeting, Irvine, CA, APHL Annual Meeting, Little Rock, AR and the FERN *B. anthracis* and *Y. pestis* in Food Methods Course, Richmond, VA.

-**Roy Tu'ua**, TB, completed a year long Next Step Leadership Program lead by the Department of Health and Senior Services.

-**Patrick Hopkins**, Newborn Screening, attended the The New York Krabbe Symposium, Buffalo, NY, The Newborn Screening Translational Research Network (NBSTRN) LSD Workgroup Meeting, September 24<sup>th</sup> in Bethesda, MD and the Heartland NBS and Genetics Conference, Kansas City, MO with **Darla Eiken**, Newborn Screening.

-**Amy Pierce**, LPES and **Patrick Hopkins**, Newborn Screening presented at the Science Teachers of Missouri (STOM) Conference, in St. Louis, MO.

-**Laboratory Staff** attended an 'Insider Threat Training' given by FBI Special Agent Cudmore at the MSPHL.

-**Alan Schaffer**, Chemistry, attending the USDA FSIS FERN CAP Grant Annual Meeting in Richmond, VA and the CDC LRN-C Level One Meeting in Jacksonville, Florida.

-**Brandy Schafer**, Chemistry, attended the FERN GC-MS Screening of food matrices using TOXI in Richmond, VA

-**Fran Thompson**, Chemistry, attended the International Association for Food Protection 2014 conference, Indianapolis, IN

-**Mindy Rustemeyer**, Chemistry, attended the FDA/FERN Gas Chromatography - Mass Spectrometry Training Course, Seattle, WA

**Staff  
happenings  
in the  
Laboratory**

## Introducing Lab Employee of the Quarters

By: Roy Tu'ua, TB Unit Chief and S.C.O.P.E. Workforce Team Leader

### Lindsey Brandl, Central Services, Quarter III

Lindsey has been selected as the Employee of the Quarter for her extraordinary and consistent quality of service and accountability. In addition to her regular duties, Lindsey has been given several projects with very short completion timelines of which she always completed on-time with a fabulous attitude and without fanfare.

One example is when Lindsey received a request to

aggregate a substantial amount of data for the Executive Management Team (EMT) and Fiscal Unit to be sent to the Division of Community and Public Health (DCPH) within one hour. Lindsey compiled the data into a report and quality checked for integrity before submission without any problems.

Another example was during the snow storms in 2013. Lindsey saved the labo-

ratory a total of \$4,625.80 by assessing the situation of Local Public Health Agencies (LPHA) for our courier service and halted pick-up service to the LPHA's that were closed or inaccessible.

Without any prompting, Lindsey is always assisting others in the unit in any way possible. Lindsey is always willing to go above and beyond her duties by taking a leadership role.



Lindsey Brandl, 2014 Quarter III Employee of the Quarter. Congratulations Lindsey!

### Nicole Farnsworth, PART, Quarter IV

Nicole was selected as the Employee of the Quarter for her undying dedication to customer service and her diligence to assist a laboratory customer in spite of numerous obstacles and hurdles placed before her.

Nicole received a telephone call from a patient that could not speak English which proved to be a huge barrier, but was able to ascertain that the caller had received a letter regarding

Newborn Screening. Knowing this may be a sensitive issue, Nicole tried to determine from the caller the nature of the letter. Nicole patiently worked with the caller and convinced her to hold on while she tried to find a translator because of her recollection of the Department having a language line translation service.

The next hurdle was finding the access code for the translation service. once connected Nicole was able to

speaking to the patient through a translator and assist them.

Nicole's patience and determination exemplifies the true concern which she has for our laboratory customers. Nicole's reassurance to the caller went above and beyond service and her proactive approach and compassionate demeanor lead to exemplary service and a very positive outcome.



Nicole Farnsworth, 2014 Quarter IV Employee of the Quarter. Congratulations Nicole!

# Congratulations!

*Thank you for your years of service*

*Years of service as of January 1st, through December 31st, 2014*

#### 30 Years

Darla Eiken

#### 15 Years

Don Daniels  
Brian Flores  
Sandy Jones  
Debbie King

#### 10 Years

Lindsay Boeckman  
Russ Drury  
Rachel Hardy  
Tracy Klug  
Brian Lutmer  
Ashley Mehmert  
Laura Naught

#### 5 Years

Ashley Eiler  
Brian Inman  
Adam Perkins

#### 25 Years

Mary Menges  
Dennis Schmitz  
Bill Whitmar



## Editorial Board for *Beyond The Scope*

Russ Drury  
Shondra Johnson  
Sandy Jones  
Mike Massman  
Mary Menges  
Laura Naught  
Amy Pierce  
Bill Whitmar

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or  
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## Around Jefferson City, MO Missouri State Penitentiary (MSP) Site

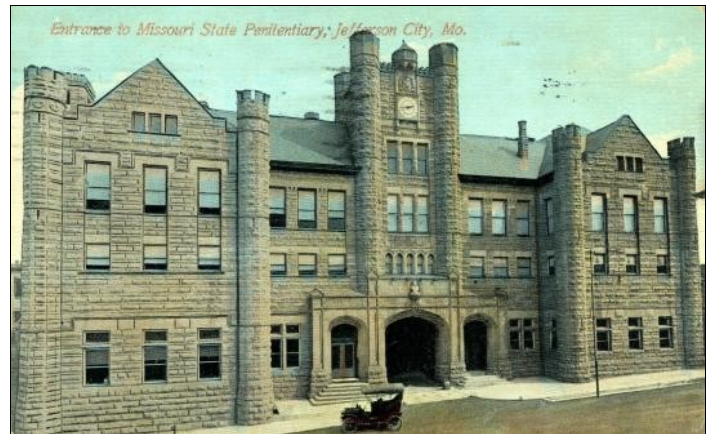
The Missouri State Penitentiary (MSP) was constructed in the early 1830s to serve the newly admitted state of Missouri. Jefferson City had been designated the state capitol in 1822, and Governor John Miller suggested that the state's main prison be constructed there to help the city maintain its somewhat tenuous status against other towns trying to obtain the capitol for themselves. James Dunnica, a master stonemason who built the first Capitol building in Jefferson City in 1826, was appointed to oversee construction of the new prison, and \$25,000 was allotted by the legislature for expenses. When the MSP opened in 1836, the Battle of the Alamo was going on in Texas. The prison was 100 years old when Alcatraz began taking inmates. The prison housed 5200 inmates at its peak and once was the largest prison in the United States. Some notable inmates were: Kate Richards O'Hare was brought to M.S.P. in 1919 to serve a five-year sentence for an anti-war speech she had given in Bohman, North Dakota some months earlier. Kate O'Hare's prison sentence was commuted by President Woodrow Wilson in May, 1920.

Charles Arthur "Pretty Boy" Floyd entered M.S.P. on December 18, 1925 for a robbery.

Charles "Sonny" Liston entered MSP and learned to box there before winning the National Heavyweight Championship.

James Earl Ray was admitted to the penitentiary in March 17, 1960. On April 23, 1967, prisoner #00416J escaped from the Missouri State Penitentiary in a bread box that was supposed to contain loaves of bread that was being transported from M.S.P. to another prison. Somewhere during the trip, Ray escaped. Ray was later convicted for the assassination of Martin Luther King, Jr in 1968.

The Missouri State Penitentiary was named the "bloodiest 47 acres in America" by Time magazine. Before it closed in 2004, MSP was the oldest continually operating penitentiary west of the Mississippi River. The MSP site has been featured on SyFy's "Ghost Hunters", Travel Channel's "Ghost Adventures" and TLC's "Who Do You Think You Are?" series with Cynthia Nixon. It is now open seasonally for public tours, operated by the Jefferson City Convention and Visitors Bureau (CVB). Tour guides are former corrections officers, guards and wardens who worked within the walls of MSP. For more information go to [Missouripentours.com](http://Missouripentours.com) or [Visitmo.com](http://Visitmo.com).



*Housing Unit 1, which now serves as the main entrance to MSP was constructed in 1905. Infamous female inmates Emma Goldman and Kate O'Hare lived there.*



*View of the MSP site from the Missouri State Public Health Laboratory.*