

State of Idaho  
Bureau of Laboratories  
2220 Old Penitentiary Rd  
Boise, ID 83712-8249

Phone: 208-334-2235

Fax: 208-334-4067

E-mail: [statalab@dhw.idaho.gov](mailto:statalab@dhw.idaho.gov)

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# Idaho Bureau of Laboratories Clinical Forum

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## Mumps Cases in Idaho

Vonnita Barton

In September 2014, a small cluster of mumps cases were reported in North Central Idaho, and as of late November, mumps has been detected in 10 specimens at the Idaho Bureau of Laboratories (IBL). IBL can perform RT-PCR and mumps culture from buccal swab specimens received in Viral Transport Media (VTM) or IgM antibody testing from blood specimens on suspected mumps cases.

Mumps is a contagious but vaccine preventable disease that is spread through airborne transmission, droplet spread, or direct contact with saliva of those who have the infection. Initial mumps symptoms include fever, headache, muscle aches, tiredness, and loss of appetite followed by swelling of salivary glands (parotitis). Most people with mumps fully recover in a few weeks, but some may develop serious complications such as encephalitis, which can lead to death or permanent disability.<sup>1</sup>

Mumps was a very common disease prior to vaccine licensure in 1967, but the incidence of disease

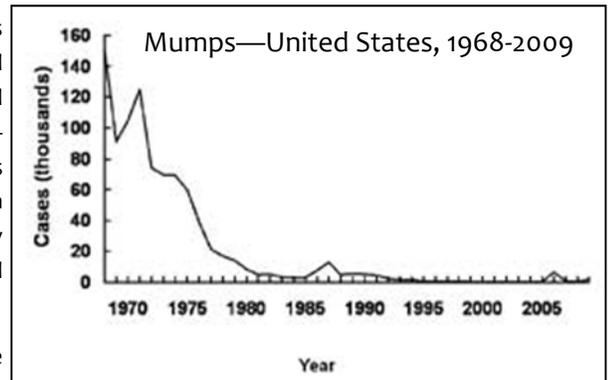


Figure 1. Mumps cases in the US decreased rapidly following vaccine licensure in 1967. Figure used with permission and retrieved from <http://www.cdc.gov/vaccines/pubs/pinkbook/mumps.html>.

has dropped sharply as a result of effective vaccination campaigns (see Figure 1).<sup>2</sup> Mumps is a reportable disease in Idaho, and data from the Idaho Reportable Disease Summaries shows that typically less than four cases are reported annually (see Figure 2).<sup>3</sup> The 10 detected this fall represents a significant increase from recent years and

(Continued on page 2)

## Increase in Idaho of Invasive *Streptococcus pyogenes* Epidemiology Program, Bureau of Communicable Disease Prevention

Infections caused by *Streptococcus pyogenes*, or Group A strep (GAS), are reported to be endemic, epidemic, or sporadic across much of North America. Invasive GAS is a reportable disease in Idaho, and surveillance data indicate 2014 year-to-date reported incidence (n=47) is an increase of over 104% compared with 2013 (n=23) and a 327% increase compared with 2012 (n=11). Nationally, surveillance data illustrate that reports of invasive

GAS disease can vary by geographic region and over time, alluding to the possibility that a population's susceptibility to a particular strain might also vary. The most common clinical manifestations of GAS in humans include pharyngitis, tonsillitis, and superficial skin infections (impetigo)

(Continued on page 3)



IDAHO DEPARTMENT OF  
HEALTH & WELFARE

Clinical Forum  
Editorial Staff

Dr. Christopher Ball  
Robert Voermans  
Wendy Loumeau  
Amanda Bruesch  
Vonnita Barton  
Lindsey Catlin

## Mumps Cases in Idaho

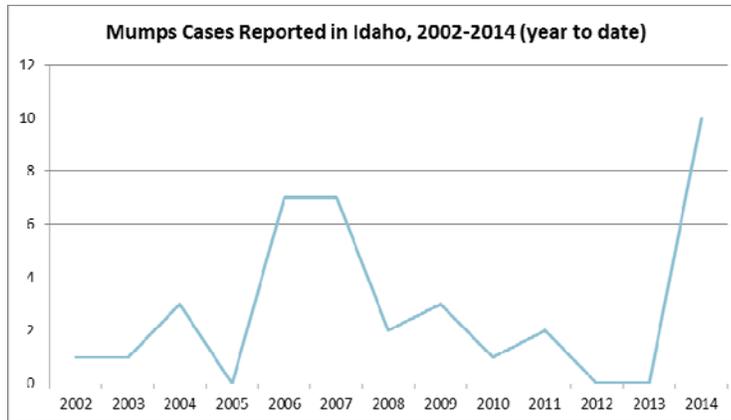


Figure 2. Reported mumps cases in Idaho shows an increase from previous years for 2014 (as of December 1, 2014).

suggests a mumps outbreak. To strengthen the outbreak evidence, all of the mumps positive samples were sent to CDC for subtyping and were all identified as Mumps Genotype G. This strongly suggests common transmission, and public health district epidemiologists are working with community and healthcare providers to prevent further spread of disease in the area.

Should mumps testing be requested in your facility, please visit the CDC [Materials and Methods for Specimen Collection, Storage, and Shipment](#) website for

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detailed instructions regarding recommended samples for mumps testing. Swabs and VTM for mumps testing can be requested on the State Lab website, [www.statelab.idaho.gov](http://www.statelab.idaho.gov), or contact Vonnita Barton at [bartonv@dhw.idaho.gov](mailto:bartonv@dhw.idaho.gov) or 208-334-2235 with any mumps-related questions.

### References

<sup>1</sup>Centers for Disease Control and Prevention (2014). *Mumps*. Retrieved from <http://www.cdc.gov/mumps/index.html>

<sup>2</sup>Centers for Disease Control and Prevention (May 2012). *Epidemiology and Prevention of Vaccine-Preventable Diseases, The Pink book: Course Textbook*. (Chapter 14: Mumps). Retrieved from <http://www.cdc.gov/vaccines/pubs/pinkbook/mumps.html>

<sup>3</sup>Idaho Department of Health and Welfare (2014). *Idaho Reportable Disease Summaries*. Retrieved from <http://www.healthandwelfare.idaho.gov/Health/Epidemiology/IdahoDiseaseSummary/tabid/202/Default.aspx>

### UPDATED CONTACT INFORMATION:

Robert Voermans  
Microbiology Section Manager  
Reference, Enteric, and  
Environmental Bacteriology  
208-334-2235  
[VoermanR@dhw.idaho.gov](mailto:VoermanR@dhw.idaho.gov)

Vonnita Barton  
Clinical Section Manager  
Virology/Serology, VPD, STI, and  
Mycobacteriology  
208-334-2235  
[BartonV@dhw.idaho.gov](mailto:BartonV@dhw.idaho.gov)

## IBL Organizational Changes

Christopher Ball, Ph.D., HCLD (ABB)

The Idaho Bureau of Laboratories (IBL) experienced substantial personnel turnover during 2014, and we now have several new faces and employees in new positions. We utilized this volatility to reorganize our lab structure and I'd like to highlight a few changes that will impact the clinical laboratory community. In July, Lisa Smith resigned from her position as Clinical Section supervisor to return to California. With her departure we divided the responsibilities of that position and formed two new sections.

Robert Voermans is now managing the Microbiology Section responsible for reference, enteric, and environmental microbiology. He will be the point of contact for select agent rule out testing, reference identifications, antimicrobial resistance monitoring, as well as enteric, food, and waterborne bacteriology.

Robert has been with the laboratory since 2008 and has worked in several roles in clinical bacteriology, environmental microbiology, and most recently as the IBL biological threat laboratory coordinator. We are very excited to welcome Robert into his new leadership role at IBL.

Vonnita Barton is the new manager for the IBL Clinical Section. She will be the point of contact for virology, serology, vaccine preventable diseases, sexually transmitted infections, and mycobacteriology. Vonnita has worked at IBL since 1987 and brings a wealth of knowledge into her new management role.

I'm sure you will find both Vonnita and Robert a pleasure to work with in their new positions. Please take a moment to update your contact information (left side bar of this page).

# Invasive *Streptococcus pyogenes*

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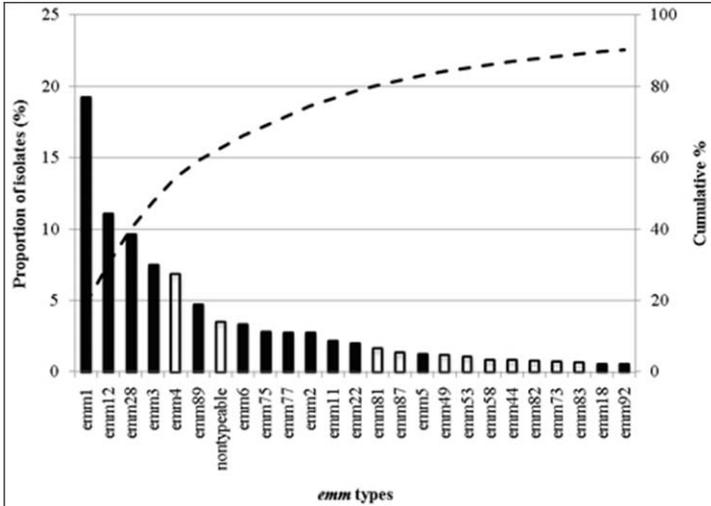


Figure 1. The 25 most common *emm* types contributing to all disease in Established Market Economy countries: accounts for 90.3% of all isolates from the region with 146 types contributing to the remaining 9.7% of isolates. Figure used with permission and retrieved from <http://www.cdc.gov/streplab/emmtype-proportions.html>.

while invasive disease can result in severe streptococcal toxic shock syndrome, or septicemia<sup>1</sup>. Increasing emphasis has been placed on establishing databases that include the predominant *emm* types in circulation. Figure 1 shows the 25 most common *emm* types contributing to all disease in Established Market Economy countries. In response to the observed increase in invasive GAS infections reported in Idaho this year, the Idaho Bureau of Laboratories (IBL) recently implemented *emm* typing capabilities in support of disease surveillance activities conducted by the Bureau of Communicable Disease Prevention.

On August 7, IBL utilized the Idaho Sentinel Laboratory Response Network to disseminate a request for invasive GAS isolates to be sent to IBL for typing. Since then, thanks to the efforts of the many free-standing and hospital-based labs in Idaho, IBL has received 19 samples for *emm* typing. A majority of the typed isolates are strains commonly found in circulation, as defined by the Centers for Disease Control and Prevention (CDC)<sup>2</sup>. However, a subset of isolates was a strain rarely found in circulation, *emm* 59.0. A literature review indicated that the most significant documented *emm* 59.0 event occurred in Canada from 2006 through 2009, and investigators described the strain as “hypervirulent” which resulted in rapid spread to every Canadian territory within a few years<sup>3</sup>. The CDC Active Bacterial Core Surveillance Program reported *emm* 59.0 cases in Minnesota, New Mexico, and Oregon in 2013. Major risk factors consistent with *emm* 59.0 GAS infections in the United States and Canada include alcohol abuse, homelessness, hepatitis C infection, and illicit drug use.

Public Health District (PHD) epidemiologists are currently working with individuals reported as having invasive *Streptococcus pyogenes* type *emm* 59.0 in Idaho to characterize health status, risk

behaviors, potential routes of exposure, and common healthcare encounters. Identifying any commonalities will assist PHD epidemiologists in controlling and preventing widespread transmission of *emm* 59.0. IBL continues to receive GAS isolates from around the state, with the ultimate goal of producing a broader database with supporting evidence of strains in circulation among Idaho’s population causing invasive disease. The continued support of GAS isolate submission from labs and facilities around the state will assist Idaho Public Health Officials to better promote prevention activities and develop health education as well as public health intervention and prevention strategies.

### References

<sup>1</sup>Heymann, David L., ed. Control of Communicable Diseases Manual: An Official Report of the American Public Health Association. 19th ed. Washington, DC: American Public Health Association, 2008. Print.

<sup>2</sup>Steer AC, I Law, L. Matatolu, BW Beall, JR Carapetis. 2009. Global *emm* type distribution of group A streptococci: systematic review and implications for vaccine development. *Lancet Infect Dis* 9:611-616.

<sup>3</sup>Fittipaldi, Nahuel, Randall Olsen, Stephen Beres, Chris Van Beneden, and James Musser. "Genomic Analysis of *Emm59* Group A *Streptococcus* Invasive Strains, United States." *Emerging Infectious Diseases* 18.4 (2012): 650-52. *Emerging Infectious Diseases*. Center for Disease Control and Prevention (CDC), Apr. 2012. Web. 08 Aug. 2014.

## Word Scramble

answers on page 8

1. OEABL

2. EIGUAN

3. MMUPS

4. CVCAIEN

5. OSATTIIRP

6. YBTADINO

7. GTIUPNYSB

8. ILNSECERVAUL

9. UPCTCSOSRETOC

10. TLIIMPSSDOIIEGOE

# Ebola Outbreak in Guinea—July 2014: A personal experience

Mariana Rosenthal, MPH, Ph.D., Bureau of Communicable Disease Prevention

On June 10, 2014, I responded to a request from the [Epidemic Intelligence Service \(EIS\)](#) Program at the [Centers for Disease Control and Prevention \(CDC\)](#) for a French-speaking EIS Officer to join a team in Guinea as a [World Health Organization \(WHO\)](#) consultant for 3.5 weeks to help with the Ebola outbreak response. After almost 3 weeks of preparations, including obtaining vaccinations, a visa, and reading everything Ebola-related, I was anxiously ready to go.

I stopped by CDC headquarters in Atlanta to pick up equipment (personal protective equipment, laptop, cellphone, and bed net) and to visit the clinic for medications (e.g., antimalarial) and a health examination. Later, waiting to board my Air France flight to Conakry, Guinea, I watched my Brazilian national football team crumble in the World Cup semifinal. I hoped my next 23 days would be more inspiring.

In Conakry, I was greeted by a local expeditor and directed toward a United States Embassy driver to take me to my hotel. I turned on my CDC cellphone to inform my team lead I had arrived. I barely had time to shower before briefly meeting with the team to go over roles and responsibilities and shuffling off to the apartment where all the healthcare workers from the [Doctors Without Borders \(MSF\)](#) in Conakry lived, for a potluck dinner. Awkwardly, I learned that MSF healthcare workers are trained to not shake hands. I was like a sponge trying to learn who did what, which languages they spoke, what was being done and how, and what the gaps were I could help bridge. I had slept less than 10 hours in 3 nights.

My next 3 weeks passed in a blur. I quickly learned that without a defined routine, taking initiative was critical. Daily morning calls with countrywide partners were vital to discuss goals and problems. Political struggles were tangible. My days and long nights were mostly spent on case database management. I looked forward to walking to the Ebola Treatment Center (ETC) to scan new case reports because I could see the city, talk with people, meet survivors who were helping, and learn of the improving status of patients.

I arrived when the number of patients seen in Conakry’s ETCs was diminishing. MSF was considering transferring their Conakry ETC to local control and moving their assets to newly emerging areas, like Sierra Leone and Liberia, where no infrastructure existed to properly respond to cases that were appearing. Nigeria suddenly had a case in a traveler from Liberia. We began having biweekly conference calls with CDC headquarters, and I recognized the voices of fellow EIS officers as they updated the status of the outbreak response from places like Monrovia and Lofa. The week I left, Conakry saw a surge in cases after a young girl from a neighboring country with Ebola walked into the main hospital with her family. When I look at the epidemic curve (Figure) today, I notice how what I experienced (orange bar) was almost a flat line in comparison to the raging scope of what the epidemic has become. And I wonder how much work and collaboration it will take to stop its spread.

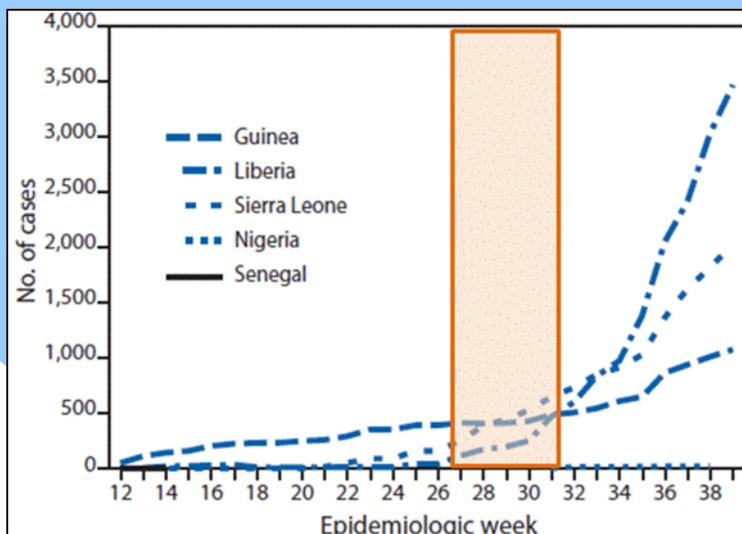


Figure 1. Cumulative number of Ebola virus disease cases reported — five countries, West Africa, March 29–September 20, 2014. [Reference: *Update: Ebola Virus Disease Outbreak — West Africa, September 2014. MMWR. 63(39):865-866.*]

## IBL Updates

### Robert Voermans, Microbiology Section Manager

Robert is a native Idahoan and grew up on a small farm in Indian Valley, Idaho which is about two hours north of Boise. He attended elementary and high school in the town of Cambridge, Idaho. When he was 16 he began spending summers in Bristol Bay, Alaska working on a commercial salmon fishing boat and continued this for six years. Robert graduated from Boise State University in 2000 with a B.S. in Biology.

Over the course of his career, Robert has worked in a variety of laboratory environments including industrial coatings; environmental, clinical, food, and bio-threat microbiology; and industrial hygiene. Away from work, he enjoys spending time in the outdoors hunting, fishing, and camping with his three children: Anika, Logan, and Gwyn ages 12, 10, and 6 years.



### Rachel Beukelman, Microbiologist Principal

Rachel Beukelman has been an employee at IBL since August, 2009, starting as a lab tech assisting with the H1N1 outbreak. She recently assumed the position of Microbiologist, Principal, taking the lead in the Reference Bacteriology laboratory. Rachel graduated from the College of Idaho in 2008 with a bachelor's degree in Biology with a minor in History.

Rachel lives in Boise with her husband and two cats. In her spare time, Rachel enjoys reading, rocking out at concerts, and supporting the local comedy scene. She also enjoys baking, knitting, and binge-listening to podcasts.



### Kara Englund, Automated Program System Specialist

Kara Englund joined the Idaho Bureau of Laboratories in August of 2014 as the new Automated Program System Specialist, and is incredibly grateful for the opportunity. She graduated with honors from the College of Western Idaho with an A.A.S. in Web Development, and has experience working in a Data Warehouse environment. Prior to that, she received a B.A. in Public Communication from the University of Idaho. Outside of work, Kara enjoys cooking, fishing, reading, spending time with her friends and family, and playing with her two Beagle puppies.



### Lavanya Vempati, Microbiologist Senior

Lavanya was born in Chennai, India and moved to Boise with her husband in 2008. She recently received her M.S. Degree in Biology from Boise State University where her research focused on the development of vaccine adjuvants from bacterial enterotoxins through genetic engineering techniques. Lavanya also received her M.Sc. degree in Biotechnology from University of Madras in

India and worked on the development of antigen detection techniques as a part of rotavirus vaccine project. Lavanya joined Idaho Bureau of Laboratories in September. In her spare time, Lavanya enjoys practicing meditation, reading books, walking, and spending time with her husband, Murali, and 2 year old daughter, Pragnya.



### Jacklyn Donahue, Microbiologist

Jackie Donahue began working at Idaho Bureau of Laboratories as a Microbiologist in September 2014. She graduated from Boise State University in 2012 with a degree in Environmental Studies. Jackie has worked for the J.R. Simplot Company, Idaho Department of Fish and Game Fish Genetics Lab, and the United States Geological Survey. In her spare time Jackie likes to watch movies, shop, and go hiking with her husband



Jon and their seven month old baby girl, Harper; she also has two little boy cats that are more of a handful than her baby girl!

## IBL Updates (continued)

### Amanda J. Bruesch, M.S., Developmental Scientist

Amanda Bruesch recently accepted a promotion as the Idaho Bureau of Laboratories' (IBL) Developmental Scientist. Her previous positions with the lab were as the Microbiologist, Principal in Molecular Epidemiology and Reference Bacteriology, as well as a Microbiologist, Senior in Reference Bacteriology. In her new position she will work on new method development and validation throughout the lab, troubleshooting, and setting up a specimen repository at IBL. Amanda obtained her B.S. and M.S. in Biology from Boise State University. Amanda has two sons, ages 3 and 8, and a husband of 10 years. In her free time she enjoys knitting, cooking, gardening, and running.



### Michael Stevenson, Deputy Laboratory Director



In September 2014, Michael Stevenson accepted a position as Deputy Laboratory Director at the Idaho Bureau of Laboratories (IBL). This is a new position in which he assists IBL's Laboratory Director, Dr. Christopher Ball, in various aspects of his responsibilities as Bureau Chief. Also under this position, Michael will manage the newly created Lab Support section of IBL, which consists of IBL's Laboratory Information Management System (LIMS) and Building Maintenance staff. Prior to this position, Michael worked for two years as the Emergency Preparedness Section Manager, which, under the IBL reorganization, is no longer a section; Laboratory Response Network for Biothreats (LRN-B) and Chemical Threats (LRN-C) are now in the newly created Microbiology Section and Chemistry sections, respectively. Michael also was employed as a Principal Chemist in the Feed and Fertilizer Lab for three years at the Idaho Department of Agriculture. Born and raised in Indiana (a Hoosier!), Michael graduated from Butler University and earned his Doctor of Philosophy in Chemistry from Stanford University in 1993.

Outside of work, Michael has a wide range of interests and hobbies. He enjoys the foothills for jogging and mountain biking, and he plays violin in the Meridian Symphony Orchestra. His parents retired to Hawaii, so Michael looks forward to regular vacations there!

### Vonnita Barton, Clinical Section Manager

Vonnita started at Idaho Bureau of Laboratories (IBL) in 1987 as a temporary microbiologist to run an assay for an emerging disease that had not been detected in Idaho yet. The disease was called AIDS, and it was a scary time for all health professionals due to so many unknowns about this virus, especially with the fatality rate of this virus at the time. In 1987, IBL was the only place in Idaho running the HIV test, so needless to say, her job was quickly deemed permanent.

Vonnita grew up in the small North Central Idaho town, Kooskia. She came to IBL with a B.S. in Biology from Boise State University, settled into the virology department, and has been there ever since. She enjoys the many roles a public health lab offers and the opportunities to be a front runner in testing many emerging viruses and the ever-changing testing methods. As part of the identification and/or development of many emerging virus analysis, she has worked with many newly discovered or reemerging viruses in her time at IBL including HIV, Lyme disease, SARS, Hantavirus, West Nile Virus, MERS-CoV, pandemic Influenza A/H1N1, Human Metapneumovirus (HMPV), Hepatitis C, and most recently Enterovirus D68 and Ebola virus. She has been part disease discoveries testing that has changed the way people of Idaho live their lives; such as the HIV testing upsurge when Magic Johnson announced his HIV status, when Idaho led the nation in West Nile Virus positive cases, and the Influenza A/H1N1 pandemic.

Vonnita has two children, a son, Casey, who just turned 21 and her daughter, Hailey who is a freshman at Wyoming State University this year. In her free time, Vonnita enjoys horseback riding, her flower gardens, and the great outdoors.



### Kimberly Dillon, Microbiologist Principal



Kimberly Dillon recently moved to Idaho from Texas and joined Idaho Bureau of Laboratories in November as a Microbiologist Principal in the Virology laboratory. She obtained both her Bachelor’s and Master’s degrees in Biology from the University of Texas at Tyler.

Kimberly has spent the majority of her professional career in academic and state laboratories. She has worked in environmental bioremediation microbiology, then as a deep well injection biochemist at a hazardous waste disposal facility, and later in lung and breast cancer research at the University of Texas Health Science Center at Tyler. After a period of time homeschooling her daughters, Kimberly returned to the laboratory and worked in a clinical non-tuberculosis *Mycobacteriology/Nocardia* susceptibility lab then finally made her move into public health as a Bioterrorism Microbiologist II in the LRN Public Health Laboratory of East Texas where she found her passion in public health.

Kimberly is gleefully married to her husband and fellow microbiologist, Michael, and has two daughters. Her youngest daughter, Kaleigh, is 15 and is actively involved in her drama team and the band. Her older daughter, Megan, is 20 and is in her junior year at The University of Texas. They have a menagerie of pets including 4 Arabian horses, 2 Japanese bobtail cats, a schnauzer, a Boston terrier, a budgie, and a tank of African Cichlids. In her spare time, she is an independent consultant with The Pampered Chef (since 1998). She loves to cook, entertain, garden, go fishing with her husband, spend time with her children and horses, and read, knit, and crochet.

### Wendy Loumeau, Business Analyst

Wendy Loumeau recently accepted a promotion as Idaho Bureau of Laboratories’ (IBL) Business Analyst. She had been a Health Education Specialist with the Bureau for three years. In her new position, she will continue work with the Idaho Sentinel Laboratories Network (ISLN) and will work on quality assurance and quality control activities within IBL. Wendy obtained her B.S. in School Health Education from Brigham Young University and is currently pursuing a Masters in Public Health from Idaho State University.

Wendy has two daughters, ages 2 and 6, and a husband of nine years. In her free time, she enjoys family outings to the zoo, family bike rides, and reading. In August, she recently ran her first 5K and plans to run more in 2015.



## HAPPY HOLIDAYS FROM IDAHO BUREAU OF LABORATORIES!



Pictured from left to right: Rachel Beukelman, Kimberly Dillon, Lavanya Vempati, Christopher Ball, Kari Getz, Vonnita Barton, Amanda Bruesch, Lindsey Catlin, Ashley Machado, Erin Peterson, Wendy Loumeau, Jacklyn Donahue, Michael Stevenson, Robert Voermans, Steve Gregoire

## Solution to Word Scramble

1. EBOLA
2. GUINEA
3. MUMPS
4. VACCINE
5. PAROTITIS
6. ANTIBODY
7. SUBTYPING
8. SURVEILLANCE
9. STREPTOCOCCUS
10. EPIDEMIOLOGIST

## Upcoming Webinars

February 4, 2015; 11:00 am Mountain Time

*CLSI 2015 Antimicrobial Susceptibility Testing Update*

February 24, 2015; 11:00 am Mountain Time

*Bordetella pertussis: Resurgence of an Old Disease*

March 5, 2015; 11:00 am Mountain Time

*Specimen Processing in Clinical Microbiology: What's New?*

April 7, 2015; 11:00 am Mountain Time

*Emerging Mosquito-borne Viruses in the United States*

Contact Wendy Loumeau at [loumeauw@dhw.idaho.gov](mailto:loumeauw@dhw.idaho.gov) to register.

### Ashley Machado, Microbiologist Senior



Ashley recently accepted a promotion as Microbiologist, Senior. She began at Idaho Bureau of Laboratories (IBL) as a student intern and then did summer work for the Chemistry section before becoming a Microbiologist in spring of 2013. She is originally from Pennsylvania and moved to Idaho to attend Boise State University

where she received her B.S. in Biology. She is excited about her new position and to expand her role at IBL.

Ashley lives in Boise with her fur kid Cooper the Cat. Outside of work, she likes to stay active by playing soccer, skiing, golfing, fishing, and hiking and also loves to cook.

### Erin Peterson, Microbiologist Principal

Erin Peterson was recently hired as the Microbiologist, Principal for the LRN-B lab. She is originally from Montana but moved to Colorado to attend the University of Northern Colorado where she attained her B.S. in Biology. After graduating, she moved to Boise and started working in a high volume veterinary hospital laboratory. She worked in this laboratory for 10 years, performing medical diagnostics and assisting



doctors in treatment options and plans for the patients. While she enjoyed the unpredictable testing and procedures that veterinary medicine often brings, her favorite part was building a Regenerative Medicine (Stem Cell and PRP Therapy) Program for the hospital and seeing the benefits in each patient they performed it on.

Erin is a self-proclaimed "Dog Person" who has "a crazy Weimaraner that keeps me busy and on my toes." She loves fly fishing, trail running, gardening, finding good food, and re-purposing and reupholstering old and antique furniture. She is happy to be in the Boise area and excited to start this new challenge in her life and career.