MISSION
Shape national and global health outcomes by promoting the value and contributions of public health laboratories and continuously improving the public health laboratory system and practice.

VISION
A healthier world through quality laboratory systems.
2015 WAS A TREMENDOUS YEAR FOR APHL

As implied by our annual report theme — APHL by Latitude and Longitude — the association’s activities span continents, from work with the African Society for Laboratory Medicine in Addis Ababa, Ethiopia, to evaluation of point-of-care syphilis diagnostics in Raleigh, North Carolina.

But don’t let the geographic focus distract from other measures of success.

In 2015, APHL broadened its partnerships and its funding base, which now includes:
- A new CDC cooperative agreement focusing on laboratory biosafety and biosecurity
- New funding from the US Department of Health and Human Services, Maternal and Child Health Bureau to work with at least 20 states seeking to optimize their newborn screening programs
- A renewed CDC cooperative agreement to strengthen essential state and local public health laboratory services
- An ongoing US Food and Drug Administration cooperative agreement to advance laboratory accreditation for food and animal feed testing laboratories

The association also gained technological sophistication, with a new LEED-certified gold-level office space, new whole genome sequencing projects and workshops, and important enhancements to the APHL Informatics Messaging Services Platform, to name just a few endeavors.

Perhaps the most important measure, however, is a recap of our public health successes. A few highlights include:
- Critical on-site support for the Ebola laboratory response in Sierra Leone
- The ascension of two APHL Emerging Leader Program graduates to state laboratory directorships (in New Mexico and New York)
- Release of APHL’s biennial Comprehensive Laboratory Services Survey findings — the only data source for Healthy People 2020 Objective 11
- Establishment of a tuberculosis drug-susceptibility testing reference center at the California Department of Public Health Laboratory
- Identifying Legionella-testing laboratories for the US EPA to help resolve a deadly outbreak of Legionnaire’s disease in New York City

Needless to say, our annual report includes additional successes on every page.

Finally, we like to judge an organization by the company it keeps. And by this measure, APHL is second-to-none. Although it is impossible to call out each of our indispensable partners in this short space, let us at least name a few of our newer partners, not mentioned above: the Association of American Feed Control Officials and the Association of Food and Drug Officials (who share our FDA cooperative agreement), US Department of State Global Health Security Agenda Ambassador Bonnie Jenkins, and the Colorado School of Public Health, which co-manages APHL’s NewSTEPs newborn screening program.

With heartfelt thanks to all of those who contribute to APHL’s success, and with best wishes for another outstanding year.

Sincerely,

Judith C. Lovchik, PhD, D(ABMM) Scott J. Becker, MS
President Executive Director

2015 APHL ANNUAL REPORT | 1
Freetown, Sierra Leone 
8.4844° N, 13.2344° W

“We have prevailed over an evil virus. We persevered and we have overcome,” said Sierra Leone President Ernest Bai Koroma last fall, as hundreds of people reveled in the streets of Freetown, the capital city of this long-struggling West African nation.

As reported by the Associated Press, the November 7 festivities marked the official end of the deadly Ebola epidemic here, following two consecutive 21-day Ebola incubation periods with no new cases.

This achievement certainly merits celebration — the result of months of effort by individuals and organizations committed to saving lives and instilling hope. APHL was pleased to be able to contribute to the multinational response, making use of its extensive expertise in laboratory practice.

As in past emergencies, APHL filled a critical role building reliable testing resources, so patients could be accurately diagnosed and disease surveillance begun. APHL’s Freetown-based consultant, Dr. Isatta Wurie, PhD, helped to draft the Ebola Response Laboratory Operational Manual; surveyed the laboratories operating in Sierra Leone to gauge their capabilities, testing capacity and needs; helped launch an Ebola proficiency testing program; and worked with local officials to ensure uninterrupted utility service for the response laboratories.

With CDC funding, APHL also began a long-term project to renovate the Sierra Leone Central Public Health Reference Laboratory, which was shuttered in late 2014 due to insufficient biosafety protections for laboratorians and later suffered a collapsed roof.

Hanoi, Vietnam 
21.0285° N, 105.8542° E

New Delhi, India 
28.6139° N, 77.2090° E

Ironically, the Ebola response ramped up at the same time as the Global Health Security Agenda (GHSA) — a major, international effort to “accelerate progress toward a world safe and secure from infectious disease threats” like Ebola. Given the need for laboratory testing to detect and monitor biosecurity threats, CDC tapped APHL to support key GHSA “acceleration” projects in priority countries in Asia and Africa, from India to Uganda. Last fall, APHL began a series of site visits in these countries to finalize specific project plans. Overall, projects will include activities such as:

• Documenting the capabilities, testing capacities and relationships among domestic clinical laboratories. What can they test for? How is the national laboratory network configured? How does the national laboratory network interface with international sites? Each in-country assessment will conclude with a list of recommendations from APHL enabling national health ministries to target laboratory spending toward critical needs.

• Reviewing national laboratory strategic plans and policy documents to ensure a robust link between clinical laboratories and public health epidemiology programs. Absent such a link, laboratory data is under-utilized and disease surveillance suffers.

• Partnering with local experts, or developing in-country expertise, to certify the efficacy of laboratory biosafety cabinets, a requirement for worker safety.

APHL is leveraging the US Laboratory Response Network — founded by CDC, APHL and the Federal Bureau of Investigation — as a model for national laboratory systems in other countries. In 2015, the association shared the model with the African Society for Laboratory Medicine and Vietnam’s Ministry of Health.

The association’s GHSA partnerships extend to the US Department of State — which sent GHSA Ambassador Bonnie Jenkins to speak at APHL’s 2015 annual meeting — and to the African Society for Laboratory Medicine (ASLM) — a pan-African, professional association modeled on APHL and based in Addis Ababa, Ethiopia. ASLM worked closely with APHL on its Ebola response in Sierra Leone and will continue to work with the association as it carries out acceleration projects in Africa.
Public health laboratory leaders from 12 African countries participate in a group activity at the International Institute for Public Health Laboratory Management at Stellenbosch University in Cape Town, South Africa.

“Ebola detection hinges on quality laboratory systems, and that is what the Sierra Leone Health Ministry is working to establish, with APHL support.”

Isatta Wurie, PhD, senior public health laboratory consultant, APHL
In an interconnected world, it is impossible to separate domestic and global biosecurity; dangerous pathogens move about as easily as tainted food or infected travelers or mosquitos. Thus, while strengthening laboratory systems abroad, APHL has also been attending to state and local laboratories in the US to assure laboratory biosafety and public biosecurity.

While the Ebola crisis was escalating and outcomes uncertain, APHL provided crucial input to national health officials regarding laboratory needs — especially laboratorians’ request for enhanced biosafety training. CDC subsequently asked the US Congress for supplemental preparedness funding for this and other priorities. Ultimately, federal legislators in Washington, DC, appropriated an Ebola response package of over $5 billion, including $250 million in new public health spending. A total of $105 million went, through the CDC Epidemiology and Laboratory Capacity program, to the 50 state health departments and to health agencies in the six largest US cities and eight US territories or freely associated states (FAS).

At the same time, via the Hospital Preparedness Program and Public Health Emergency Preparedness cooperative agreements, CDC awarded $145 million, divided among health departments in the 50 states, four major US metro areas and eight US territories and FAS. The funding comes with the stipulation that “public health agencies must ensure their jurisdictions have the ability to quickly, safely and accurately perform laboratory testing on suspected Ebola virus specimens, as well as manage any surges of specimen testing and analysis.”

APHL received a $2.2 million CDC cooperative agreement to provide biosafety/ biosecurity expertise and training to the newly funded state and local government laboratories and to develop guidance and tools to assist those laboratories with outreach and biosafety training for the sentinel clinical labs in their jurisdictions.

APHL’s newly established Biosafety and Biosecurity Committee — chaired by Michael Pentella, PhD, director of the William A. Hinton State Laboratory Institute — is overseeing this work as well as related policy matters. Already, APHL’s membership has approved a position statement on the need for rigorous biosafety practices, which the committee will be implementing. A big concern, for example, is the safe packaging and shipping of suspect specimens going from clinical laboratories to reference laboratories for confirmatory testing. Among many ongoing activities are development of virtual communities of practice to facilitate information sharing among laboratory biosafety officers and development of an online repository of risk assessment templates and training courses.

“I have had a chance to learn about APHL’s expertise in laboratory systems, and I welcome its engagement with the GHSA Nongovernmental Sector Consortium, which is doing such good work to promote global health security.”

Ambassador Bonnie Jenkins,
US Department of State
In 2015, APHL was active in 25 countries: Angola, Botswana, Democratic Republic of the Congo, Ethiopia, Ghana, Guinea, Guyana, Haiti, India, Kenya, Lesotho, Mozambique, Namibia, Nigeria, Rwanda, Sierra Leone, South Africa, South Sudan, Swaziland, Tanzania, Uganda, Ukraine, Vietnam, Zambia and Zimbabwe.
ASSURING THE FOODS YOU LOVE WON’T MAKE YOU SICK

Multistate foodborne disease outbreaks are becoming more common and more deadly, according to CDC. “They can be big, and they can be lethal,” said agency Director Thomas Frieden, MD, MPH, in a 2015 press briefing at which he announced CDC had documented 120 multistate outbreaks during 2010–2014. Although the multistate outbreaks comprised just 3% of all US foodborne disease outbreaks during this period, they accounted for 56% of foodborne outbreak deaths and were linked to a wide range of foods, including cucumbers, cantaloupes and ice cream.

Fortunately, public health authorities are becoming more and more adept at detecting — and ending — foodborne disease outbreaks in their earliest stages.

As co-founder and continuing sponsor of the United States’ first nationwide, laboratory-based network for foodborne disease surveillance — PulseNet — APHL has been helping keep tainted food off grocery shelves for decades. More recently, APHL has expanded its role with new partnerships and new initiatives.

In 2012, APHL’s food safety program took a giant leap forward with the award of a five-year, US FDA cooperative agreement to strengthen the US food safety system together with two stalwart partners: the Association of American Feed Control Officials (AAFCO) in Champaign, IL, and the Association of Food and Drug Officials (AFDO) in York, PA.

A particular cooperative agreement focus is support for US food and animal feed laboratories seeking to attain or expand accreditation for their testing programs in compliance with ISO Standard 17025:2005 — the gold standard in the field. Importantly, accreditation ensures the acceptability of laboratory data to support cross-jurisdictional food safety investigations and regulatory interventions.

In 2015, this partnership had much to showcase:
- An APHL consultant providing on-site technical assistance to accreditation-seeking laboratories.
- An online repository of more than 200 accreditation resources, including sample work plans, a collection of best practices and more.
- Training webinars and an online discussion board on the APHL website.
- A subject matter expert registry of food and feed laboratory professionals.
- An AFDO-developed competency framework for food and feed testing laboratories and curriculum framework for regulatory food safety training.
- Expansion of AAFCO’s accredited proficiency testing programs for feed, food and pet food.
- AAFCO’s GOODSamples guidance, detailing techniques for obtaining legally defensible food and feed analytes.
“APHL’s Food and Feed Testing Subcommittee walked our staff through the ISO accreditation process, from the ‘big picture’ of how ISO works to the incremental steps needed to achieve it. Our NDA food and residue laboratories achieved ISO accreditation in November 2015, and we couldn’t be happier.”

Dirk Shoemaker, laboratory administrator, Nebraska Department of Agriculture

### National Collaborations

A second APHL effort to safeguard the US food supply is its long-term participation in the Council to Improve Foodborne Outbreak Response (CIFOR) — a national collaboration of laboratory scientists, epidemiologists and food safety inspectors across all levels of government. In 2015, three important APHL CIFOR projects came to fruition:

- **Outbreaks of Undetermined Etiology Guidelines.** These guidelines provide recommendations on the proper handling of foodborne outbreak specimens, so they are not degraded or used up before scientists can perform second-tier testing, when an etiology proves elusive.

- **Yardstick Self-Assessment Tool for Public Health Food Safety Testing.** This valuable resource went online in 2015 to make it even easier for laboratories to measure and monitor their performance in key areas, such as surge capacity and data accuracy. The tool was designed for use by any laboratory that tests for chemicals, toxins, radiation or foodborne pathogens in human specimens, food or environmental samples to support public health.

- **CIFOR Metrics Entry Tool (C-MET).** What training, tools and resources do foodborne disease outbreak responders need? C-MET was created to find out. The online tool, developed with the Minnesota Integrated Food Safety Center of Excellence, enables food safety officials to enter data on 16 CIFOR metrics with target ranges, including test turnaround time and the percentage of microbes subtyped for PulseNet. Not only can users compare their progress with aggregate data for each metric, but select database administrators can access stratified data (e.g., for geographic regions) to identify common gaps.

### Moving PulseNet into the Future

The PulseNet surveillance network has traditionally relied on a technology called pulsed-field gel electrophoresis (PFGE). Once considered state-of-the-art, PFGE is gradually being replaced by whole genome sequencing (WGS), which offers greater discriminatory power to identify specific foodborne pathogens. In 2015, APHL coordinated the effort to certify 12 PulseNet laboratories in WGS for Salmonella, E. coli O157:H7, C. jejuni and L. monocytogenes, one of the deadliest foodborne bugs.

The association also:

- Supported ten pilot sites in the PulseNet network to begin WGS for Salmonella and Shiga toxin-producing E. coli and equipped those sites with $430,000 worth of testing reagents and supplies

- Proposed a Harmonized WGS Quality Assurance Plan for PulseNet and FDA’s GenomeTrakr laboratory network

- Convened the 2015 Integrated Foodborne Outbreak Response and Management Conference in Phoenix, AZ. This cross-discipline meeting — organized by three federal agencies and five associations — brought together over 475 public health authorities to discuss WGS implementation and other salient topics

- Assisted with bench training on WGS, as well as training on Applied Maths’ BioNumerics software, which offers push-button analysis of complex WGS data, eliminating the need for a laboratory bioinformatician. APHL also purchased BioNumerics 7.5 upgrades for many member laboratories.
ANCIENT SCOURGES, MODERN SOLUTIONS

While APHL exerted much energy and resources to help contain the Ebola virus in 2015, it did not forget a trio of age-old microbes that continue to pose a threat: influenza, tuberculosis and syphilis.

Influenza outbreaks have plagued humankind throughout history, sporadically reaching pandemic levels. Between April 12, 2009 and April 10, 2010, for example, H1N1 influenza sickened over 60 million people in the United States, killing an estimated 12,469.

While APHL has long supported influenza surveillance throughout the world, a major effort last year centered on Madison, Wisconsin, home of the Wisconsin State Laboratory of Hygiene (WSLH). The project brings contemporary science — in the form of whole genome sequencing (WGS) — to bear on the ancient scourge. WSLH scientists demonstrated proof-of-concept for the molecular technology and began performing WGS on influenza specimens from a third of the country, providing an amazing new level of detail about circulating flu viruses. This information will help experts predict the pathogenicity, ease of transmission and drug resistance of various strains. It will also inform the make-up of the annual influenza vaccine.

The WSLH is one of three APHL-supported influenza reference centers. The other two — the state public health laboratories in New York and California — are expected to begin routine WGS for national influenza surveillance in 2016.

A second prominent activity in 2015 was a series of four “right-size” influenza workshops — two in Atlanta, GA, and one each at state public health laboratories in Providence, RI, and Taylorsville, UT. These workshops aim to help laboratory scientists optimize their flu surveillance by calculating the number of specimens needed to ensure adequate confidence in surveillance data, as well as detection of novel viral strains.
“Rapid advances in sequencing and bioinformatics are revolutionizing microbiology. CDC is excited to be partnering with APHL and public health laboratories across the country to apply these technologies to benefit the health of all Americans.”

Gregory L. Armstrong, MD, director, CDC Office of Advanced Molecular Detection
COUNTING HOURS TO SAVE A BABY’S LIFE

Newborn screening is all about quality and speed — a race to accurately identify infants with congenital disorders before the onset of irreparable damage — or even death. For the healthcare workers who collect newborn bloodspot specimens and the laboratory scientists who conduct the screens, it is a high-stakes race that is repeated more than four million times a year, once for each baby born in the United States. In 2015, much of APHL’s newborn screening work was geared toward shaving hours off the clock.

Since 2012, APHL has teamed up with the Colorado School of Public Health (Colorado SPH) in Aurora to provide a valuable resource to newborn screening stakeholders, the Newborn Screening Technical assistance and Evaluation Program or NewSTEPs. In September 2015, the Colorado SPH, in collaboration with APHL, was awarded $5.4 million — $1.8 million/year for three years — to support at least 20 states seeking to make initial newborn screening system processes more efficient. This funding — from the US Department of Health and Human Services, Maternal and Child Health Bureau — will be used for a 360-degree review of the newborn screening system, leading to a range of solutions to improve timeliness, such as courier services to hand-deliver newborn specimens to laboratories and health information technology for faster results reporting. The project — dubbed NewSTEPs 360 — has already created one of the nation’s largest collaborations of newborn screening stakeholders, including the March of Dimes, Association of Maternal and Child Health Programs, National Institute for Children’s Healthcare Quality and many others.

In short, Section 12 lays out new requirements for the use of the infant bloodspots remaining after newborn screening is complete. Historically, these so-called residual dried bloodspots (DBSs) have been de-identified and made available for qualified medical research and for core newborn screening activities, such as calibrating laboratory instruments and developing tests for newly treatable congenital disorders. The revised law requires states to obtain informed consent before residual DBSs can be used in any federally funded research, and this requirement remains in effect until the Federal Policy for the Protection of Human Subjects (aka the Common Rule) is updated.

Although APHL, and newborn screening scientists generally, support informed consent, they also recognize that the current, vaguely worded law can be construed so as to hinder vital public health activities. Thus, meeting participants identified issues related to broad consent for future use of residual DBSs, as well as strategies to educate the public about newborn screening and opportunities to participate in newborn screening research. APHL and its members are also providing information to the US Department of Health and Human Services as it weighs changes to the Common Rule.
When newborn screening programs want to add a new disorder to their test panels, often they have to develop it themselves, because there are no commercial test kits for most extremely rare disorders. The first states to screen for severe combined immunodeficiency (SCID), for example, began in 2010; the first commercial, FDA-approved SCID test wasn’t available until 2015. Similarly, when emerging diseases arise — such as chikungunya and Ebola — CDC and governmental public health laboratories are virtually always the first to bring diagnostic tests online. Again, there are no pre-existing FDA-approved commercial test kits. Even today, there is no FDA-approved molecular assay for measles.

This ability to create laboratory-developed tests (LDTs) has been crucial to meet emerging public health needs. Yet, FDA is considering changing the rules to make the process more costly and burdensome, and public health laboratories less nimble.

In response, APHL called upon its members to speak at a public FDA forum in January 2015 and submitted written comments to the agency. The association remains hopeful that any new FDA LDT guidance will not obstruct potentially life-saving public health laboratory work.
Although there are only a few hundred public health laboratory leaders in the United States, they shoulder an outsized responsibility for quick and effective laboratory response to any number of possible emergencies: outbreaks of emerging pathogens, catastrophic flooding, foodborne disease, chemical spills and more. Precisely because the stakes are so high, APHL considers workforce development a leading priority.

The association is pleased to report that 2015 was a remarkable year for its National Center for Public Health Laboratory Leadership (NCPHLL). Two past NCPHLL Emerging Leader Program graduates ascended to state public health laboratory directorships: Lixia Liu, PhD, MP(ASCP), became director of the New Mexico Scientific Laboratory Division, and Maria Ishida, PhD, became director of the NY Department of Agriculture and Markets. In addition, the NCPHLL:

- Graduated Class 7 of the Emerging Leader Program and launched Class 8. For its group project, Class 7 added a series of middle school science lesson plans to a website — www.thatssick.org — created by Class 6. As stated on the site, “THAT’S SICK is a virtual open house designed to introduce students to the exciting careers in public health laboratory science.” Class 7 also hosted an “Ask me anything” Q&A session on Reddit.com (a social networking and news site used by high school and college students) and hosted a hands-on science program for middle school students at the Indiana Public Health Laboratory, in conjunction with the APHL annual meeting.
- Graduated the first class of emerging laboratory leaders outside the US. This pilot program, involving 10 Lesotho scientists, was lauded by the Lesotho Ministry of Health.
- Updated the Practical Guide to Public Health Laboratory Leadership to reflect new and emerging issues related to public health laboratory management. Revisions were made by Emerging Leader Program graduates, who now have their own group — the Network of Laboratory Leadership Alumni.
- Sponsored the development of two webinar series — one on professional mentoring and coaching; the other on Lean methodology, a management approach that emphasizes continuous quality improvement to maximize efficiency and minimize costs.
- Celebrated the MMWR publication of the NCPHLL-developed competency guidelines for public health laboratory professionals. The guidelines were completed in 2014 and run to 350 pages in length. They will now serve as the starting point for development of training tools, job descriptions, performance plans and career ladders.

Also in 2015:

- APHL hosted 63 webinars with over 23,000 participants from clinical, academic and public health laboratories from the US and 16 other countries. Topics ranged from biosafety and antimicrobial resistance to quality systems, next generation sequencing and biomonitoring.
- The APHL/CDC National Laboratory Training Network (NLTN) offered 70 courses for over 3,500 registrants and sponsored the biennial meeting of state public health laboratory training coordinators in Atlanta, GA.
With this maxim in mind, APHL works to assure that its member laboratories do measure and track quality metrics.

- In 2015, the Iowa State Hygienic Laboratory and the Montana Laboratory Services Bureau completed their second Laboratory System Improvement Program (L-SIP) assessment, designed to measure a laboratory’s ability to carry out the 10 essential public health services. Virginia’s Fairfax County Health Department Laboratory and Kentucky’s Louisville Metro Health Department Laboratory completed their first L-SIP assessments.
- In Denver, CO, and Silver Spring, MD, APHL hosted two workshops, addressing the three elements of laboratory quality management systems: non-conforming event management, internal audits and quality indicators.
- In the virtual realm, the association developed two webinars on the use of quality standards in biochemical genetic testing.
- APHL released the results of its biennial Comprehensive Laboratory Services Survey, the only data source for Healthy People 2020 (HP 2020) Objective PHI-11—to “increase the proportion of [governmental] public health agencies that provide or assure comprehensive laboratory services to support essential public health services.” Results show that several HP 2020 targets were met, among them data management, food safety and emergency response. The only area with movement away from the HP 2020 target is environmental health.
APHL IS INFORMATICS

APHL began its Informatics Program a decade ago, with a project to deliver standardized, electronic influenza laboratory surveillance data to CDC. Today, APHL is a recognized leader in the field. And the possibilities are endless...

The APHL Informatics Messaging Services (AIMS) Platform transmits vital medical and public health data in the “cloud,” but its servers are based here on earth. In 2014, the platform migrated to the Amazon Web Services’ (AWS’s) server farm making it more powerful and reliable, with built-in back-up systems and redundancies. In 2015, the AIMS platform got even better with:

• Electronic controls to allow for automatic expansion and contraction of processing and computing power, based on client demand.
• Links to AWS server farms in other locations provide a second line of security for users even during a catastrophic event.

The improved AIMS Platform is the platform of choice for data transmission among public health laboratories and agencies. And it is quickly becoming the gateway to public health for other users. For example, it serves as the technology backbone for:

• The Public Health Immunization Data Exchange — a project sponsored by the Office of the National Coordinator for Health Information Technology to ensure reliable reporting of immunization data to state immunization registries.
• Initial Case Reports of Reportable Conditions — A project to scan electronic health records for diagnoses of reportable conditions and transmit the data to state or local jurisdictions and to medical providers. Since less than a third of reportable conditions are believed to be reported to health authorities, the project promises to dramatically improve public health surveillance and community disease control. APHL is collaborating with the CDC and the Council of State and Territorial Epidemiologists on this project.
• CDC’s Advanced Molecular Detection (AMD) Program — an ambitious effort to track pathogenic microbes and solve infectious disease outbreaks by examining microbes’ DNA or RNA code (which can discriminate among different strains of the same bug and yield information on microbial virulence, drug-resistance and transmissibility). Yet the program has faced a bottleneck: transmitting whole genome sequencing data for a single pathogen (a 15 gigabyte file on average) is the electronic equivalent of transmitting the novel War and Peace. Now imagine 50 state health agencies trying to send data to CDC during an outbreak. Fortunately, the AIMS Platform and associated tools have cut the transmission time from eight hours to one, simplifying the process and negating the need for costly information technology upgrades in state health agencies and laboratories.

And the same technology and logic sets used for AIMS Platform projects can be repurposed for exchange of other public health data such as childhood obesity, cancer incidence and hospital readmissions.

“The faster we can identify a vaccine-preventable disease (VPD) outbreak, the faster we can contain it. That's why we are grateful to APHL's informatics team for simplifying the complex process of implementing real-time VPD reporting to CDC.”

Mary Wedig, data management and ELR coordinator, Wisconsin State Laboratory of Hygiene.
Henderson, Nevada  
**36.0292° N, 115.0253° W**

Henderson, NV, was an inauspicious setting for a discussion of a topic of growing importance to the world — biomonitoring. The name isn’t sexy, but biomonitoring — the measurement of environmental toxicants in people — is an urgent need.

Potential toxicants are ubiquitous in modern life. In fact, EPA’s list of US-made or US processed industrial chemicals is over 85,000 substances long.

In 2014, APHL wrapped up a five-year plan to establish a network of laboratories with biomonitoring capabilities. This year APHL embarked on a second five-year plan to formalize the network, with standardized quality measures, test methods and data reports, and a multidisciplinary oversight committee.

New York City, New York  
**40.7127° N, 74.0059° W**

Kinshasa, Democratic Republic of the Congo  
**4.3250° S, 15.3222° E**

One vital APHL service is connecting stakeholders with laboratories that can meet specific public health needs, including environmental testing. Last year, the association:

- Provided EPA with a list of laboratories able to test for *Legionella*, during a deadly Legionnaires’ disease outbreak in the South Bronx.
- Connected the Coca-Cola Foundation’s Replenish Africa Initiative with the Office Congolais de Contrôle — a public institution with water-testing capability in the Democratic Republic of the Congo. The foundation aims to provide clean water access to 200 million people in Africa.

In Nevada, APHL’s environmental health director spoke at the annual meeting of the International Society for Exposure Science and met with experts to discuss international biomonitoring efforts.

Silverton, Colorado  
**37.8125° N, 107.6631° W**

An environmental disaster in August 2015 made clear the need for biomonitoring: more than 3,000,000 gallons of arsenic-laced waste spilled from the tailing pond for the defunct Gold King Mine near Silverton, CO, turning the beautiful Animas River orange. The poisonous release ultimately contaminated waterways in Colorado, New Mexico and Utah. In response, APHL convened a call with local and federal health authorities, urging rapid implementation of biomonitoring to gauge health impacts. At least one state, Utah, has already begun.
MEMBERSHIP DUES
$839,226

WORKSHOPS
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CONFERENCES AND EXHIBITS
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OTHER
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GRANTS AND CONTRACTS
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TOTAL
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(UNAUDITED FIGURES)
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<td>Swaziland</td>
<td>$160,753</td>
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<tr>
<td>Tanzania</td>
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<td>Ukraine</td>
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<td>Vietnam</td>
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<td>Zambia</td>
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<tr>
<td>Zimbabwe</td>
<td>$1,326,805</td>
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<td><strong>Global Programs Total</strong></td>
<td><strong>$8,001,013</strong></td>
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</tbody>
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**Total Expenses (Unaudited Figures):**

**$37,832,620**
2015 APHL AWARDS

Lifetime Achievement Award

Philip Amuso, PhD, HCLD(ABB)
Former Chair of the APHL Workforce Development Committee; director for five clinical laboratories around the nation

Sally Liska, DrPH
Global public health laboratory consultant

Presidential Award

Joe Reardon
Assistant Commissioner for Consumer Protection, North Carolina Department of Agriculture and Consumer Services

Gold Standard Award for Public Health Laboratory Excellence

Bahman Parsa, PhD
Director, Environmental and Chemical Laboratory Services, New Jersey Division of Public Health and Environmental Laboratories
2015 APHL ANNUAL REPORT

First Place: State Hygienic Laboratory at the University of Iowa

Runner-up: San Bernardino Public Health Laboratory, California

Honorable Mention: Katherine A. Kelley, Public Health Laboratory, Connecticut
### JAN
- APHL co-hosts Joint South Central and Southeast PulseNet/OutbreakNet Regional Meeting in New Orleans, LA with CDC, FDA and CSTE
- Five public health laboratories earn Lean certification with support from APHL
- APHL holds meeting of Collaborative Improvement & Innovation Network (CoIIN) to Reduce Infant Mortality in Silver Spring, MD

### FEB
- APHL and GWU sponsor 7th International Institute for Public Health Laboratory Management at Stellenbosch University in Cape Town
- APHL publishes *Culture Independent Diagnostic Tests: Paving the Way for Improved Diagnostics and the Future of Foodborne Disease Surveillance*
- APHL delivers “CLSI 2015 Antimicrobial Susceptibility Testing Update” to over 4200 participants

### MAR
- APHL CDC, FDA and CSTE sponsor Joint North Central and Midwest PulseNet/OutbreakNet Regional Meeting in Chicago, IL
- APHL sponsors tandem mass spectrometry follow-up workshop in Durham, NC
- APHL holds meeting of Hemoglobinopathies Laboratory Workgroup in Atlanta, GA
- APHL hosts LIMS training in Uganda

### APR
- APHL sponsors Laboratory Investigation of Foodborne Illness workshop with University of Maryland, Joint Institute for Food Safety and Applied Nutrition
- APHL supports L-SIP reassessment and assessment in Iowa and Louisville
- APHL conducts technical workshop on Pompe and lysosomal storage disorders in Atlanta, GA

### MAY
- APHL members and staff meet with Dr. Tom Burke, EPA science advisor and deputy assistant administrator of the Office of Research and Development
- MMWR publishes article about APHL/CDC Competency Guidelines for Public Health Laboratory Professionals
- APHL receives $2.2 million cooperative agreement from CDC to strengthen biosafety and biosecurity in the nation’s laboratories

### JUN
- APHL launches web-based Yardstick Food Safety Laboratory Self-Assessment Tool
- APHL convenes meeting of federal and public health partners to discuss development of a National Bio-monitoring Network
- APHL Emerging Leaders develop three webinars to support Lean implementation
- APHL and CDC complete Laboratory Information Management System Integration (LIMSi) implementations in six Laboratory Response Network labs
- APHL releases update to *A Practical Guide to Moving to a New Site for Public Health Laboratories and A Practical Guide to Dealing with Laboratory Floods*
- APHL presents at first training workshop on Genetic Education and Counselling for Sickle Cell Conditions in Accra, Ghana
- APHL participates in National Conversation on NBS Research and Informed Consent in Washington, DC
JUL
- APHL achieves milestone: 94% of eligible public health labs report test data electronically via the AIMS platform
- Over 400 participants join APHL’s “Harmful Algal Blooms: Drinking Water Impacts and Methods” webinar
- APHL submits data from 2014 Public Health Systems Survey to Healthy People 2020 to update the Public Health Infrastructure-12 objective
- APHL convenes meeting on Severe Combined Immunodeficiency in Bethesda, MD
- APHL Emerging Leaders launch “Thatssick” website to share information on lab careers with students

AUG
- APHL convenes Laboratory Response Network (LRN) Joint Leadership Committee to discuss assay development for LRN-B and LRN-C
- APHL submits data from 2015 Comprehensive Laboratory Services Survey to Healthy People 2020 to update the Public Health Infrastructure-11 objective

SEP
- APHL begins second peer-to-peer coaching program
- APHL sponsors 2015 LRN National Meeting with over 300 in attendance
- APHL offers “Anaerobic Microbiology: Its Survival in Today’s World” to over 650 attendees

OCT
- APHL attracts 35,000+ participants – over twice the number in 2014 – to a massive open online course, “Chemicals & Health,” offered in collaboration with Johns Hopkins University
- APHL staff visit Sierra Leone to support Ebola lab strengthening activities and participate in African Society for Laboratory Medicine Global Health Security Agenda (GHSA) conference
- APHL establishes Public Health Laboratory Competency Steering Committee
- APHL publishes The Brave New World of Laboratory Informatics II: Navigating in the Digital Age

NOV
- APHL publishes Outbreaks of Undetermined Etiology CIFOR Guidelines
- APHL co-sponsors Integrated Foodborne Outbreak Response and Management (InFORM) Conference in Phoenix, AZ, with CDC, FDA and USDA
- PulseNet and workforce data visualization dashboards are available to members
- APHL visits Vietnam to conduct a GHSA assessment and support planning

DEC
- APHL launches CIFOR Metrics Entry Tool to help labs evaluate the performance of foodborne disease surveillance, investigation and control programs
- APHL publishes 2014 Comprehensive Laboratory Services Survey Summary
- APHL and CDC convene 6th CaliciNet User Meeting in Albuquerque, NM
- APHL establishes an office in Guinea to oversee association activities in that country
- APHL Informatics Services Platform (AIMS) has over 50 messaging partners who route an average of 20,000 messages/month through the system
STANDING COMMITTEES
(2014 - 2015)

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Kelly Wroblewski, Staff Liaison
### Centers for Disease Control and Prevention

- Center for Global Health
- Office of Infectious Diseases, National Center for Immunization and Respiratory Diseases; National Center for HIV/AIDS, Viral Hepatitis, STD and TB Prevention; National Center for Emerging and Zoonotic Infectious Diseases
- Office of Noncommunicable Diseases, Injury and Environmental Health; National Center on Birth Defects and Developmental Disabilities; National Center for Environmental Health/Agency for Toxic Substances and Disease Registry
- Office of Public Health Preparedness and Response
- Office of State, Tribal, Local and Territorial Support
- Office of Public Health Scientific Services; Center for Surveillance, Epidemiology, and Laboratory Services; Division of Health Informatics and Services; Division of Laboratory Systems; Division of Scientific Education and Professional Development

### Other Federal Agencies

- Centers for Medicare and Medicaid Services, Division of Laboratory Sciences
- Department of Defense
- Department of Homeland Security, Office of Health Affairs; Science and Technology Directorate
- Department of State, Office of Global AIDS Coordinator
- Environmental Protection Agency, Office of Water, Office of Solid Waste and Emergency Response
- Federal Bureau of Investigation, Hazardous Materials Science Response Unit; Hazardous Materials Response and Training Unit; Chemical, Biological, Radiological Nuclear Sciences Unit; Weapons of Mass Destruction Directorate

### Food and Drug Administration, Center for Biologics and Evaluation Research; Center for Devices and Radiologic Health; Center for Food Safety and Applied Nutrition; Center for Veterinary Medicine; Office of Regulatory Affairs

### Health Resources and Services Administration, Maternal and Child Health Bureau

### US Department of Agriculture, Animal and Plant Health Inspection Service; Food Safety and Inspection Service; Agricultural Research Service; Agricultural Marketing Service

### US Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response; Office of the National Coordinator for Health Information Technology

### Associations, Non-Governmental Organizations and Other Partners

- AOAC International
- Association of American Feed Control Officials
- African Field Epidemiology Network
- African Society for Laboratory Medicine
- American Academy of Pediatrics
- American Biological Safety Association
- American Clinical Laboratory Association
- American College of Medical Genetics
- Association of Food and Drug Officials
- American Public Health Association
- American Society for Clinical Pathology
- American Society for Clinical Laboratory Science
- American Society for Microbiology
- American Thoracic Society
- Association of Maternal and Child Health Programs

- Association of Schools and Programs of Public Health
- Association of State and Territorial Health Officials
- Canadian Public Health Laboratory Network
- Caribbean Epidemiology Center
- Children’s Environmental Health Network
- Clinical and Laboratory Standards Institute
- Clinton Health Access Initiative
- College of American Pathologists
- Colorado School of Public Health
- Columbia University Mailman School of Public Health, University Technical Assistance Program
- Council of State and Territorial Epidemiologists
- Council to Improve Foodborne Outbreak Response
- deBeaumont Foundation
- D4O - Design for Others
- Elizabeth Glaser Pediatric AIDS Foundation
- Foundation for Innovative Diagnostics
- Genetic Alliance
- The George Washington University, Milken Institute School of Public Health
- Global Laboratory Initiative
- InternationalFood Protection Training Institute
- International Society for Neonatal Screening
- Johns Hopkins Bloomberg School of Public Health
- Management Sciences for Health
- March of Dimes
| National Alliance of State and Territorial AIDS Directors |
| National Association for Public Health Statistics and Information Systems |
| National Association of County and City Health Officials |
| National Coalition of STD Directors |
| National Conference of State Legislatures |
| National Environmental Health Association |
| National Tuberculosis Controllers Association |
| Pacific Island Health Officers’ Association |
| Pan American Health Organization |
| Pew Charitable Trusts |
| Public Health Accreditation Board |
| Public Health Data Standards Consortium |
| Public Health Foundation |
| Public Health Informatics Institute |
| The Robert Wood Johnson Foundation |
| Society for Inherited Metabolic Disorders |
| Trust for America’s Health |
| Vanderbilt University |
| World Health Organization |
| **DIAMOND** |
| Abbott www.abbott.com |
| HDR www.hdrinc.com |
| Hologic www.hologic.com |
| Luminex www.luminexcorp.com |
| PerkinElmer www.perkinelmer.com |
| QIAGEN www.qiagen.com |
| Roche www.roche.com |
| ThermoFisher Scientific www.thermofisher.com |
| **PLATINUM** |
| Abbott Informatics www.starlims.com |
| BD Diagnostics www.bd.com |
| Bio-Rad Laboratories www.bio-rad.com/diagnostics |
| Illumina www.illumina.com |
| Waters Corporation www.waters.com |
| **GOLD** |
| Cepheid www.cepheid.com/us/ |
| National Jewish Health www.njlabs.org |
| Quanta Biosciences www.quantabio.com |
| **SILVER** |
| Applied Maths www.applied-maths.com |
| Baebies http://baebies.com |
| The Baker Company www.bakerco.com |
| BioFire Diagnostics www.bio-surveillance.com |
| Bruker Daltonics www.bdal.com/MALDibiotyper |
| ChemWare www.chemware.com |
| ClorDiSys http://clordisys.com/ |
| Genial Genetics www.genialgenetics.com |
| OpGen www.opgen.com |
| Puritan Medical Products www.puritanmedproducts.com |
| Qualtrax www.qualtrax.com |
| STACS DNA www.stacsdna.com |
| The St. John Group www.TSJG.com |
| WorkingBuildings www.workingbuildings.com |
APHL Member Dues
Centers for Disease Control and Prevention:
  Office of the Director
  Center for Global Health
  Office of Infectious Diseases
  Office of Noncommunicable Diseases,
  Injury and Environmental Health
  Office of Public Health Preparedness
  and Response
  Office of Public Health Scientific Services
Environmental Protection Agency
President’s Emergency Plan for AIDS Relief
US Food and Drug Administration
US Health Resources and Services Administration