2011 ANNUAL REPORT
MISSION
To promote the role of public health laboratories in shaping national and global health objectives, and to promote policies, programs and technologies that assure continuous improvement in the quality of laboratory practice and health outcomes.

VISION
A healthier world through quality laboratory practice.

The images on the cover represent disasters from 2011: Tohoku Earthquake and Tsunami, Fukushima nuclear disaster, Listeriosis outbreak in cantaloupe, laboratorian examining a possible anthrax letter

(Pictured below) Laboratory scientist conducts testing for potential agents of biological/chemical terrorism
On the 10th anniversary of 9/11 and the anthrax attacks, APHL looks back on a world transformed. For US public health, food safety and environmental testing laboratories, the new reality involves heightened laboratory security; close ties with first responders and law enforcement personnel; and preparedness for a broad range of biological, chemical and radiological threats.

In 2011, this preparedness infrastructure—fortified with post-9/11 funding from the Public Health Emergency Preparedness Cooperative Agreement (PHEP) and the Food Emergency Response Network (FERN)—was called upon to respond to several public health emergencies, including monitoring US radiation levels after Japan’s post-tsunami nuclear crisis and confirming the source of a sizable outbreak of *Listeria monocytogenes* (traced to Colorado-grown cantaloupe).

APHL, for its part, was active behind-the-scenes, channeling information to laboratory leaders and working to assure the vitality of the preparedness infrastructure. With FERN funding threatened, PHEP funding down nearly 40% since 2002 and state revenue dwindling, there is ample cause for concern. In fact, CDC Director Thomas Frieden, MD, MPH, began discussions with APHL about a new “Laboratory Efficiencies Initiative” to find ways to preserve preparedness capabilities with limited funding. The association is an enthusiastic partner in this vital work. Despite generally bad economic news in 2011, APHL is pleased to note important progress on several fronts. The association:

- Successfully advocated for increased funding for members of the Laboratory Response Network for Chemical Threats;
- Awarded grants to 54 public health laboratories to implement or enhance molecular testing programs for foodborne bacteria;
- Expanded technical assistance to enable health agencies to accept electronic laboratory reporting data in the Health Level 7 (HL7) message format stipulated in national healthcare legislation;
- Revamped the National Center for Public Health Laboratory Leadership with a renewed focus on critical workforce issues; and
- Secured a new six-year EPA cooperative agreement, with funding for new APHL training programs for environmental laboratory scientists.

APHL also hailed what some have called “the beginning of the end” of the HIV/AIDS epidemic. The association has long contributed to laboratory improvements to expand access worldwide to reliable HIV diagnosis and treatment. Among other things, in 2011, APHL experts helped devise a new HIV screening algorithm for Nigerian health authorities and hosted the first APHL-George Washington University public health laboratory management seminar held in Africa.

Since 2001, both APHL and the nation have learned many lessons. For us, two of the most important are the resilience of America’s governmental laboratory scientists and our constant mantra looking ahead: Stay prepared.
The first nuclear crisis of the 21st Century began on March 11, 2011, after the 9.0 magnitude Tohoku earthquake and tsunami triggered a series of partial core meltdowns at Japan’s Fukushima Daiichi Nuclear Power Plant. It was a stark reminder of the sudden and unpredictable nature of public health emergencies—and a stark reminder of the need for comprehensive public health laboratory preparedness.

In this instance, many US laboratories were not prepared: due largely to funding constraints, most public health laboratories are unable to measure radiation in human specimens and about half are unable to measure it in air or other environmental samples. Even the laboratories with some radiation-testing capability generally lack resources for the high-volume testing needed in an emergency.

In the midst of the crisis, APHL partnered with Thermo Fisher Scientific to host a training webcast for about 100 laboratory leaders and scientists. The program explained radiation basics and—fortunately—the near certainty that harmful levels of radiation would not reach the US from Japan.

But radiological testing is not the only gap in laboratory preparedness. According to APHL’s 2011 all-hazards laboratory preparedness report—reflecting survey data from the 51 state and DC public health laboratories—laboratory readiness is threatened by serious fiscal challenges. Skilled workers are being asked to combine their positions and duties and to persevere through hiring freezes and furloughs. Forty percent of responding laboratories are unable to renew service contracts for biological testing equipment, and resources for preparedness drills and first responder training are down.

With budget cuts at all levels of government, significant expansion of public health laboratory preparedness seems unlikely. Instead, APHL has been working to help labs maintain and hone current capabilities and to strengthen relationships with partners in the broader response community.

New APHL Guidelines for Laboratory Response to Suspicious Non-clinical Samples, for example, explain the importance of connecting with the Federal Bureau of Investigation (FBI), National Guard Bureau WMD Civil Support Teams and other entities before and after testing samples.

A 2011 series of APHL training courses addressed a number of high-priority preparedness topics, including some not associated with traditional public health laboratory practice:

- **Laboratory methods**—culture, PCR analysis, time-resolved fluorescence microscopy and others—to confirm and characterize anthrax and other select agents. (In partnership with CDC)

- **Chain-of-custody protocols** to assure laboratory staff correctly document their handling of the more than 5,000 unknown, suspect samples they process each year, any of which might become evidence in a law enforcement case. (In partnership with FBI)

- **Moot court expert witness training** to prepare scientists to defend test results in court, an imperative stemming from the 2011 US Supreme Court ruling affirming defendants’ right to question anyone who performed a test whose result was admitted into evidence, rather than another laboratory expert. (In partnership with FBI)
• Continuation of operations planning to assure critical laboratory work can go forward even if the primary laboratory facility is damaged, contaminated or otherwise rendered inoperable. (In partnership with the RAND Corporation)

A singular 21st century laboratory preparedness priority is electronic information management.

In 2010, APHL and the CDC began the Laboratory Information Management Systems Integration (LIMSi) project to ensure rapid, reliable exchange of data on biological threat agents between CDC and public health laboratories within the Laboratory Response Network (LRN)—a coordinated group of public health and other labs for which CDC provides standard assays for testing biological and chemical threat agents.

As of late 2011, three public health laboratories were validated to support LRN LIMSi requirements, and APHL is now transitioning more than 15 additional labs to LIMSi standards.

Finally, APHL devoted considerable attention to its federal partnerships. The association:

• Commented on proposed changes to the federal select agent rule, advising against burdensome new regulations that add little to laboratory security.

• Provided expert feedback to the US Department of Homeland Security (DHS) on proposed technical changes to BioWatch, a program that maintains monitoring stations to provide early warning of a mass pathogen release in major US cities.

• Completed a survey of members of the Integrated Consortium of Laboratory Networks (ICLN) on behalf of DHS. The ICLN—a network of national laboratory networks responsible for the detection and consequence management of terrorism and other events requiring an integrated laboratory response—was established in 2005. The APHL survey report clarifies members’ expectations of the network and provides recommendations to improve its operations.

PREPAREDNESS FUNDING IN JEOPARDY

The Public Health Emergency Preparedness Cooperative Agreement (PHEP) is the primary vehicle for public health laboratory preparedness funding. Even though, on average, public health laboratories receive only about 10% of PHEP funding disbursed to states, it helped build the infrastructure and train the scientists who responded successfully to everything from the 2001 anthrax attacks to the 2010 Gulf Coast oil spill.

Here’s the good news: Thanks in part to APHL advocacy, the current five-year cooperative agreement—released August 2011—makes laboratory preparedness a distinct priority and references a list of national public health laboratory preparedness standards developed with substantial APHL input.

And now the bad news: PHEP allocations have dropped from almost $1 billion in FY 2002 to $632 million in FY 2011. A proposed funding cap would maintain PHEP at this diminished level for the entire five-year cooperative agreement cycle, further straining laboratories already hard hit by state and local budget cuts.
In times of crisis, health authorities, law enforcement officials and other emergency responders look to governmental laboratories to answer critical questions:

- Does the threat letter contain harmful substances? Is the new influenza strain spreading?

To deliver the answers, laboratories rely on policies and systems they must routinely exercise and continuously improve—processes APHL actively promotes.

The association’s Laboratory System Improvement Program (L-SIP) brings together laboratory partners to assess current system performance and identify and implement improvement strategies. More than half of state public health laboratories have undergone at least one L-SIP assessment, and, in 2011, the New Hampshire Public Health Laboratory became the first to undergo a re-assessment, earning high marks for its enhanced outreach and training for diagnostic laboratorians. Thanks to a streamlined assessment tool and the addition of measureable improvement objectives, the L-SIP assessment process is more valuable and efficient than ever.

APHL’s Informatics Program also made important advances in 2011, expanding laboratories’ electronic messaging capabilities to:

- Enable rapid data-sharing among public health entities so all can participate in event management.
- Facilitate data analysis, since transmitted data directly populates an electronic data system that can manipulate it—replacing e-mail, facsimiles and printed reports.
- Increase the time available for emergency response activities, in place of manual data entry or other manual information management.

Through its Public Health Laboratory Interoperability Project (PHLIP), APHL enabled 32 state public health laboratories to send real-time influenza surveillance data to CDC, with a dozen additional state laboratories slated to “go live” in early 2012. PHLIP partners have also been working on protocols for *Salmonella* electronic test ordering and results reporting between...
public health laboratories and CDC. At least six state laboratories are expected to implement these protocols in 2012.

Through its **Laboratory Technical Implementation Assistance for Public Health Program** (LTIAPH), APHL provided technical assistance to ten health agency/public health laboratory pairs, enabling all ten health agencies to accept electronic laboratory reporting data in the Health Level 7 (HL7) message format stipulated in national healthcare legislation. The agencies will also be able to accept HL7 messages from other health services providers—a crucial capability since the HL7 format is envisioned as the common standard for electronic health records and health information exchange in the US.

And through its **Electronic Laboratory Reporting Technical Assistance Initiative**, APHL began expanding LTIAPH technical assistance to health agencies and public health laboratories nationwide.

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**THE LABORATORY EFFICIENCIES INITIATIVE: A REINVENTION OF LABORATORY SYSTEMS**

The Laboratory Efficiencies Initiative (LEI) is an APHL-CDC project begun in early 2011, the brainchild of CDC Director Thomas Frieden, MD, MPH, who has expressed concern about public health laboratories’ long-term survival in the face of deep funding cuts. The effort challenges health agencies and individual laboratories to find the most efficient means of securing the laboratory data needed to support public health priorities.

LEI partners are exploring five areas with potential for enhanced efficiency:

1. Alternate service delivery models, such as centers of excellence that coordinate certain types of testing for multiple jurisdictions in one location
2. Improved information management systems, instrumentation
3. Streamlined systems for procuring laboratory reagents and supplies
4. Standardization of testing platforms for CDC-developed assays disseminated to states
5. Streamlined billing systems

APHL will be using CDC funding to host **member forums** to discuss best practices and possible innovations in each of these areas and to award **innovation grants** to select public health laboratories.
INFECTIOUS DISEASES

PUSHING BOUNDARIES IN INFECTIOUS DISEASE CONTROL

APHL provides a range of services to support public health laboratory infectious disease surveillance and outbreak response. It serves as a liaison among public- and private-sector stakeholders, provides technical support and advocates for the resources its members need to carry out their health-critical missions.

Relatively few of the countless species of microorganisms circulating in the world cause disease in healthy people. Among those that do, tuberculosis (TB), influenza and several others stand out, with potential to spread broadly and inflict severe illness, or even death.

In these cases, early laboratory-confirmed diagnoses and detailed characterization of the disease pathogens are crucial to assure proper treatment and provide surveillance data for health authorities.

In 2011, APHL invested considerable resources to advance member laboratories’ infectious disease programs.

Tuberculosis

• Convened the 7th National Conference on Laboratory Aspects of Tuberculosis, co-located for the second time with the National Tuberculosis Controllers Association annual meeting. The 150 attendees—including representatives from public health laboratories, clinical laboratories and diagnostic manufacturers—explored everything from results reporting to biomarkers for relapse and cure.

• Awarded 54 grants to enable public health laboratories to implement or enhance TB nucleic acid amplification testing (NAAT) programs. NAAT enables direct detection of sequences of the microbe’s DNA, with some methods capable of detecting mutations associated with drug resistance. It also delivers results much more quickly than culture.

• With CDC, surveyed 1,500 clinical, commercial and public health TB testing laboratories to gauge their testing capabilities. Results show that public health laboratories perform the vast majority of specialized TB testing in the US, including bacterial genotyping and drug resistance testing.

Influenza

• Conducted the association’s first bioinformatics training program, focused on analysis of data derived from influenza pyrosequencing (a method of DNA sequencing) to discern emerging anti-viral drug resistance, relationships among influenza strains and transmission patterns within communities.

• Published Lessons From A Virus—the story of the 2009 H1N1 influenza pandemic, as experienced by the scientists and health officials whose pre-pandemic planning and swift and adaptable response averted a more severe crisis. The publication is a ready resource for the next generation of laboratory leaders who will inevitably encounter similar infectious disease emergencies.

• With CDC and the National Institute for Communicable Diseases, held a management training course in Johannesburg, South Africa, for influenza laboratorians from across the continent. The course covered biosafety, quality practices and, importantly, the process for obtaining designation as a World Health Organization collaborating influenza laboratory. APHL recognizes that global surveillance and response are vital to control a rapidly changing virus that knows no borders.
Vaccine-Preventable Diseases (VPDs)

- Hosted two meetings to examine the use of centers of excellence for VPD testing. Consolidating testing for measles, pertussis and other VPDs may reduce costs and would give all states access to high-quality, state-of-the-art laboratory services for a group of pathogens that has been re-emerging in recent years and linked to significant outbreaks.

Finally, APHL’s Infectious Diseases Committee developed a green paper asserting that public health laboratories must play a greater role translating new scientific discoveries into practical applications. The paper, *Translational Research: A Public Health Laboratory Imperative*, notes that an expanded research role would give public health laboratories access to new sources of funding, “firmly establish[ing] their place at the cutting edge of science” and enable them to “remain viable, effective and prepared,” ultimately benefiting all members of the community.

APHL ADVANCES NEWBORN SCREENING WORLDBwide

In addition to HIV/AIDS, another area of laboratory testing that is gaining ground in developing countries is newborn screening (NBS) for early detection of heritable and congenital disorders. APHL helped broker a novel arrangement with the Ghana Ministry of Health, CDC’s Newborn Screening Quality Assurance Program (NSQAP) and three Ghanaian medical organizations to jumpstart Ghana’s participation in the NSQAP and enable collection of umbilical cord blood from Ghanaian mothers for use by the NSQAP’s sickle cell disorder (SCD) proficiency testing program—the only one in the world. Given the high incidence of SCDs in Ghana, the cord blood samples are expected to contain virtually all variants of the disorders, making the samples especially useful for proficiency testing.

NBS professionals from 17 countries and all 50 US states attended APHL’s 2011 NBS and Genetics Testing Symposium, the world’s premier NBS event, held every 18 months. More than 450 attendees discussed everything from technological innovations to ethical and legal issues.
FOOD SAFETY

HELPING TO END FOODBORNE DISEASE OUTBREAKS

APHL supports the work of member laboratories to detect and respond to foodborne disease outbreaks caused by unintentional contamination or food terrorism. It promotes the development and dissemination of laboratory innovations, convenes food safety partners and advocates for the resources needed to maintain a strong food safety net.

Foodborne disease outbreaks were in the news again in 2011, with a large-scale E. coli O104 outbreak in Europe and a US Listeria monocytogenes outbreak traced to a Colorado cantaloupe farm. The Listeria outbreak killed 29 people and caused at least one miscarriage, but would certainly have been worse if not for the quick public health response: scientists at the Colorado Department of Public Health & Environment fast-tracked their work, using two separate DNA “fingerprinting” techniques (PFGE and MLVA) to definitively match the outbreak bacteria to bacteria found on cantaloupes.

The textbook-perfect Colorado laboratory investigation relied on a testing infrastructure funded, in part, by the FDA-USDA-supported Food Emergency Response Network (FERN) and testing protocols supplied through CDC’s PulseNet—a national network of public health laboratories using standardized techniques to detect and characterize foodborne bacteria.

Begun by APHL and CDC in 1996, PulseNet is the scientific underpinning of the US food safety net. In 2011, APHL contributed to significant network advances to boost preparedness for future foodborne disease emergencies:

• Coordinated the first-ever PulseNet MLVA multi-site validation study for Listeria monocytogenes.
• Awarded grants to 18 PulseNet member laboratories to a) implement the Lumines molecular serotyping assay for Salmonella, b) implement MLVA for E. coli O157, Salmonella Enteritidis and Salmonella Typhimurium and c) validate an immunomagnetic separation assay to detect Shiga toxin-producing E. coli (STEC) in patients with hemolytic uremic syndrome, a cause of kidney failure sometimes triggered by STEC infection.
• Led a workgroup to develop guidelines for the isolation and characterization of E. coli O157 and other major US STEC strains. The guidelines—released in 2012—will enable more efficient diagnosis of an important group of pathogens.
• Established the Culture Independent Methods Subcommittee to investigate ways to acquire patient specimens or bacterial isolates for advanced laboratory testing. Given diagnostic laboratories’ growing use
of molecular assays—which do not require preservation of patient specimens—public health laboratories face increasing difficulty obtaining the analytical material they need to deliver data for disease surveillance and outbreak response.

In addition to this laboratory-focused work, APHL played a critical role fostering collaboration among the full gamut of foodborne outbreak responders:

• Piloted, updated and promoted the final version of a toolkit created by the Council to Improve Foodborne Outbreak Response (CIFOR) to help state agencies assess their use of CIFOR’s landmark foodborne outbreak response guidelines.

• Provided support to CDC’s FoodCORE program, which aims to optimize foodborne outbreak investigations by promoting the use of best practices across states (e.g., standardized patient interview tools). APHL organized a FoodCORE meeting to review the program’s progress and develop metrics to gauge its impact. Currently, FoodCORE has seven sentinel sites, two of which are funded through APHL.

• With CDC, co-organized the 7th annual meeting of OutbreakNet—a national network of epidemiologists and other foodborne outbreak investigators.

ASSURING RESOURCES TO DO THE WORK

Each year, one in six Americans contracts a foodborne infection, and about 3,000 die as a result. Any effort to improve this record depends upon a robust food safety infrastructure, which, in turn, depends upon government resources. In 2011, APHL:

• Advocated for level funding or better for two threatened programs: the Food Emergency Response Network, which supports and integrates the work of laboratories charged with foodborne outbreak response, and the USDA Microbiological Data Program, which monitors fruit and vegetables for STEC and Salmonella.

• Provided background on food safety priorities—including full PulseNet funding—to the White House through the US Office of Management and Budget.

• Participated in several federal workgroups overseeing implementation of the FDA Food Safety Modernization Act, signed into law in January 2011. This historic legislation aims to shift the focus of federal regulators from outbreak response to outbreak prevention—a goal APHL fully endorses.
IS THE ENVIRONMENT MAKING YOU SICK?  
HELPING THE SCIENTISTS WHO CAN DELIVER  
THE ANSWER

APHL raises awareness of environmental issues affecting human health and improves environmental health testing for faster threat assessment and response. The association is a critical liaison between member laboratories and federal agencies, including CDC’s National Center for Environmental Health and the US Environmental Protection Agency (EPA).

The Japan Radiation Event was the leading environmental catastrophe of 2011, prompting wholesale evacuation of a swath of the island of Honshu. Although the US was largely unaffected, APHL used the occasion to highlight findings from an association survey, published in Disaster Medicine and Public Health Preparedness, showing an alarming deficiency in US radiation testing capacity.

The association also focused on less dramatic environmental threats.

A report of hexavalent chromium—the carcinogenic chemical featured in the movie “Erin Brokovich”—in tap water in dozens of US cities led to the discovery that only one US laboratory was able to speciate chromium to determine if it is the toxic hexavalent variety. In response, APHL partnered with PerkinElmer and Thermo Fisher Scientific to organize a conference call for over 400 scientists to disseminate the methodology for detecting the chemical.

The direct measurement of hexavalent chromium or other environmental contaminants in human—as opposed to environmental—samples is termed biomonitoring, and APHL has long pushed for expanding this area of laboratory practice, considered the gold standard for assessing actual human exposure to potentially harmful substances. In 2011, APHL presented the scientific and
public health/public policy value of biomonitoring at meetings of the Council of State and Territorial Epidemiologists, American Public Health Association and National Conference of State Legislators. Staff also presented the topic during grand rounds at the University of Kansas Medical Center.

Wider understanding and support for biomonitoring will aid APHL’s efforts to create a state-based National Biomonitoring Network, facilitating the pooling of data for emergency response, research and routine surveillance to document background levels of chemical exposures.

Other association work focused on the people and infrastructure that together make environmental testing—and test reporting—possible:

- Secured a six-year, $2.4 million cooperative agreement from the EPA, with much of the funding slated for a new APHL fellowship program for environmental laboratory scientists-in-training and development of a National Environmental Laboratory Professionals Week to train those in the field, while promoting the field to new professionals.

- Secured CDC funding to support training courses for scientists responsible for analyzing possible chemical threat agents. APHL will fund travel for scientists in Level 1 (highest complexity) and Level 2 laboratories within the national Chemical Laboratory Response Network (LRN-C) to attend technical trainings coordinated by CDC.

- Developed a template for standardized electronic messages conveying environmental laboratory data. Given the complexity of the data—especially compared to clinical test data—this achievement was a major milestone for environmental testing laboratories and the government agencies that rely on their work.

- Provided technical assistance to member laboratories applying for EPA informatics funding to update their infrastructure for managing environmental test data. APHL is pleased to report that the Alabama Bureau of Clinical Laboratories was awarded $200,000.

- With partners, successfully advocated for increased funding for LRN-C laboratories. Base LRN-C funding rose from $7 million in FY 2010 to $11 million in FY 2011, with a one-time infusion of $10 million for much-needed instrumentation.

BANGLADESH DELEGATION VISITS THE MICHIGAN LABORATORY

In November, the Michigan Department of Community Health (MDCH) Bureau of Laboratories hosted Bangladesh’s Secretary of the Ministry for Health and Family Welfare (MOHFW), M. Humayun Kabir, and his accompanying delegation.

As MOHFW explores establishing a national public health laboratory system for Bangladesh, the MDCH Bureau of Laboratories demonstrated the importance and benefits of a public health laboratory system.
ACHIEVING PROGRESS IN GLOBAL HIV/AIDS PREVENTION

APHL is an important CDC partner supporting national health authorities and international agencies across the globe in efforts to end the global HIV/AIDS epidemic. Quality laboratory systems are essential for effective prevention and treatment of HIV/AIDS and other diseases associated with the epidemic, including tuberculosis and sexually transmitted infections.

The United Nations Program on HIV/AIDS declared 2011 a banner year in HIV/AIDS prevention, the fruition of years of effort. The world saw the fewest new infections (2.7 million) since the epidemic peaked in 2001 and a substantial boost in the proportion of infected individuals receiving antiretroviral therapy—nearly half of all those eligible. Yet, more work is needed. Despite laudable gains, sub-Saharan Africa remains the most heavily affected region in the world, home to an estimated 68% of all HIV-infected people and 70% of those with new HIV infections.

Efforts to halt the spread of HIV—and many other devastating illnesses that disproportionately affect resource-limited nations—depend upon early and accurate diagnoses, laboratory-informed treatment and reliable population-wide surveillance data. With laboratory-related projects on five continents, including 18 countries in Africa, APHL has been a leader in global HIV/AIDS response. Three examples of the association’s work in 2011 underscore the value of APHL’s commitment to ending this worldwide epidemic:
The African Society for Laboratory Medicine (ASLM) made its debut in March at a three-day conference in Addis Ababa, Ethiopia, where the new professional association is based. APHL has been a longtime proponent of an organization like ASLM, which will help develop and implement measures to accredit African laboratories, certify laboratory medicine training programs, publish a peer-reviewed journal and otherwise support the continent’s laboratory professionals. APHL provided technical assistance to develop ASLM’s strategic plan, and APHL’s Senior Advisor for Lab Practice and Management, Ralph Timperi, serves on its board of directors. Among those at the kick-off meeting were more than 300 African dignitaries and senior health professionals, as well as Ambassador Eric Goosby, coordinator of the US Office of Global AIDS.

In fall 2011, the APHL-George Washington University International Institute for Public Health Laboratory Management hosted its fifth annual seminar, which was the first held outside the United States. Thirty-eight laboratory scientists and managers from 14 African nations and the Ukraine attended the two-week program, held in Windhoek, Namibia. In addition to the core program, directors of APHL and ASLM discussed association-building and networking, major themes of the program. Laboratory partnerships and strong management will enhance the effectiveness of international aid to Africa to improve health.

Nigeria—the most populous African nation and the seventh most populous in the world—is pushing to expand much-needed HIV screening, but has been hampered by test kit shortages. To address this problem, Federal Ministry of Health (FMOH) and CDC staff oversaw extensive field testing of five different rapid test kits. APHL experts evaluated their data and developed a three-tier HIV screening algorithm that minimizes false-positive and false-negative results. The algorithm, still under FMOH review, offers multiple test kit options at each stage of testing—a novel approach that was challenging to achieve, but provides flexibility to prevent stock-outs.
TRAINING TOMORROW’S LABORATORY LEADERS

APHL strives both to attract students to the field of public health laboratory science and to develop the skills of mid-level professionals who will become the next generation of public health laboratory leaders. With a national shortage of laboratory professionals that threatens the nation’s preparedness, this work is among APHL’s highest priorities.

“Because of my EID fellowship, I am proficient in DNA ‘fingerprinting’ of foodborne bacteria, like E. coli O157. I was thrilled to get a job in my host laboratory and now track infectious disease outbreaks across the Commonwealth of Virginia.”

Lauren Turner, PhD
Senior Scientist, PFGE Laboratory
Virginia Division of Consolidated Laboratory Services

The year 2011 posed exceptional challenges to APHL’s workforce development programs, as APHL member laboratories struggled with staffing shortages, hiring freezes and mandatory furlough days, straining their preparedness capabilities.

In response, the association invested new resources in its acclaimed National Center for Public Health Laboratory Leadership (NCPHLL), expanding efforts on leadership training, succession planning and strategizing to improve recruitment and retention of laboratory scientists in a competitive field. The Center:

• Added a manager of leadership and management curricula.

• Added a dedicated manager to oversee the association’s emerging leader program, which brings together cohorts of promising mid-level professionals for networking, skill-building and group projects promoting public health laboratory careers. So far, there are four emerging leader cohorts, and, in 2011, they gained formal recognition as a special interest group under APHL’s Workforce Development Committee. In 2011, two former cohort...
members advanced into senior leadership positions: Grace Kubin, PhD, became director of the Texas Department of State Health Services Laboratory, and Susie Zanto, MPH, CLS(NCA), became acting director of the Montana Laboratory Services Bureau.

• Began overseeing APHL’s Emerging Infectious Disease (EID) Fellowship Program, which placed 2 postdoctoral fellows and 16 bachelor’s- and master’s-level fellows at local, state and federal public health laboratories in 2011. As part of the NCPHLL, the EID Fellowship Program expanded its offering of training webinars for fellows and added a training component for mentors to enhance the fellowship experience.

While focusing on future laboratory scientists and leaders, APHL did not neglect its role as one of the premier sources of continuing education for practicing bench scientists. After a comprehensive training needs assessment, the APHL/CDC National Laboratory Training Network (NLTN) hosted a national conference—“Success with Less: Aligning Technology, Resources and Relationships for Maximum Effectiveness”—for those overseeing training programs in state and local public health laboratories. Among the 77 attendees were state laboratory training coordinators, laboratory safety officers, coordinators of biological and chemical terrorism programs and others. The conference provided a venue for sharing training ideas and resources, with a special focus on identifying training needs based on healthcare trends, CLIA inspection deficiencies and preparedness grant requirements.

APHL’s 2011 annual meeting—“Laboratories at the Crossroads”—was yet another opportunity for governmental laboratory leaders to come together and strategize about solutions to pressing problems, including the shrinking laboratory workforce and “do more with less” ethic. Ayman El-Mohandes, MD, dean of the University of Nebraska College of Public Health, presented the Katherine Kelley Distinguished Lecture, discussing the connection between the communities’ health status and sense of empowerment, especially in new (or newer) democracies around the globe.

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* Calendar Year 2011
2011 FINANCIALS

Total Revenue: $35,825,637

- Conferences and Exhibits: $392,359
- Workshops: $856,237
- Membership Dues: $745,459
- Grants and Contracts: $33,337,922
- Other: $493,660

Grants and Contracts: $33,337,922

Total Revenue: $35,825,637
APHL Domestic Program Expenditures

Infectious Diseases 7,136,541
Informatics 4,083,958
Workshops 3,592,991
Leadership Development 2,805,744
Food Safety 2,508,295
Public Health Preparedness and Response 1,975,993
Laboratory Systems and Standards 1,699,095
Member Services 1,535,045
Environmental Health 1,227,212
Lab Strengthening/Leadership Conferences 842,611
Knowledge Management 184,945
Administration 72,249
Domestic Programs Total 28,820,951

APHL Global Health Program Expenditures

Angola 174,457
Botswana 321,977
Central Asia 77,923
Cote d’Ivoire 12,760
Democratic Republic of the Congo 41,210
Ethiopia 83,951
Ghana 60,624
Guyana 39,774
Haiti 90,940
Kenya 170,103
Lesotho 544,632
Mozambique 1,386,889
Namibia 37,409
Nigeria 291,803
Other Global Health Program Management 519,382
Rwanda 23,431
Sierra Leone 351,200
Swaziland 63,965
Tanzania 554,870
Ukraine 32,225
Vietnam 121,297
Zambia 165,104
Global Programs Total 6,570,599

Total Expenses: $35,391,550
**APHL AWARDS**

**EMERGING LEADER AWARD**

APHL’s Emerging Leader Award honors an individual whose leadership has been instrumental in one or more advances in laboratory science, practice, management, policy or education within his or her first five to ten years in the profession.

*Jack T. Bennett*, Environmental Chemistry Section Chief, Connecticut Department of Public Health Division of Laboratory Services

**GOLD STANDARD FOR PUBLIC HEALTH LABORATORY EXCELLENCE AWARD**

The Gold Standard Award for Public Health Laboratory Excellence is given to an APHL member who has made significant contributions to the advancement of public health laboratory science and/or practice.

*Stephen W. Jenniss*, MS, Director, Environmental & Chemical Laboratory Services, Division of Public Health and Environmental Laboratories, New Jersey State Department of Health and Senior Services

**LIFETIME ACHIEVEMENT AWARD**

The Lifetime Achievement Award honors individuals who have established a history of distinguished service to APHL, made significant contributions to the advancement of public health laboratory science or practice, exhibited leadership in the field of public health and/or positively influenced public health policy on a national or global level.

*Norman A. Crouch*, PhD, Former Assistant Commissioner of the Health Protection Bureau, Minnesota Department of Public Health
ON THE FRONT LINE AWARD

The On the Front Line Award honors an individual or organization outside of the APHL membership who makes significant contributions to APHL, its membership and mission.

**John Griggs**, PhD, Director, Center for Environmental Radioanalytical Laboratory Science (CERLS), National Air and Radiation Environmental Laboratory (NAREL), EPA

PRESIDENTIAL AWARD

The Presidential Award is presented at the discretion of the APHL president to an individual who has made significant contributions to the association’s work to promote policies that strengthen public health laboratories.

**May Chu**, PhD, Director, LSIPPPO, CDC, accepts the award on behalf of recipient **Carlyn Collins**, MD, MPH, Expert Laboratory Advisor, LSIPPPO, CDC

THOMAS E. MAXSON EDUCATION, TRAINING AND WORKFORCE DEVELOPMENT AWARD

The Thomas E. Maxson Education, Training and Workforce Development Award is given to an APHL member who has made significant contributions to public health laboratory practice by creating, delivering or developing continuing education opportunities, programs, policies or practices for the laboratory community.

**Wanda “Willie” Andrews**, BS, MT (ASCP), Laboratory Operations Director, Virginia DCLS, accepts the award on behalf of recipient **Jo Ann Jellison**, MS, MT (ASCP), Training Coordinator, Virginia DCLS

HEALTHIEST LABORATORY AWARD

The Healthiest Laboratory Award celebrates excellence in environmental stewardship and health promotion in both practice and policy. It recognizes APHL member laboratories demonstrating outstanding efforts to reduce their collective environmental impact and to promote health & wellness.

**First Place:** Arkansas Public Health Laboratory (Accepted by Jeffery H. Moran, PhD, Section Director, Lead Chemist, Arkansas Public Health Laboratory)

**Runner-up:** New York State Department of Agriculture & Markets
2011 APHL TIMELINE

APHL presents at 5th Annual Public Health Emergency Medical Countermeasures Enterprise Workshop

APHL participates in launch of the African Society for Laboratory Medicine in Addis Ababa, Ethiopia

APHL successfully pilots Canadian version of L-SIP in two provinces in Canada

APHL, CDC, and National Institute for Communicable Diseases convene international laboratory management course for influenza lab managers in Johannesburg, South Africa

APHL, in collaboration with WHO, UNICEF, Sierra Leone MOH and National AIDS Secretariat, completes renovation of Central Public Health Reference Laboratory, and provides technical assistance on lab organization and workflow

APHL presents at 5th Annual Public Health Emergency Medical Countermeasures Enterprise Workshop

APHL convenes LRN Operational Workgroup Meeting in Atlanta, GA

APHL convenes its largest-ever Annual Meeting in Omaha, Nebraska

APHL co-sponsors National Medical Laboratory Professionals Week

APHL participates in launch of the African Society for Laboratory Medicine in Addis Ababa, Ethiopia

APHL convenes LRN Operational Workgroup Meeting in Atlanta, GA

APHL successfully pilots Canadian version of L-SIP in two provinces in Canada

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APHL, in collaboration with WHO, UNICEF, Sierra Leone MOH and National AIDS Secretariat, completes renovation of Central Public Health Reference Laboratory, and provides technical assistance on lab organization and workflow

APHL co-organizes the 3rd PulseNet International Steering Committee Meeting in Copenhagen, Denmark

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APHL presents at Secretary's Advisory Committee on Heritable Disorders in Newborns and Children Meeting

First LIS assessment is held in Swaziland in 18 Ministry of Health laboratories as step in implementation of electronic LIS

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APHL presents at meeting of Federal Experts Security Advisory Panel, offering input on recommendations in its report concerning the select agent program

APHL receives reports from 53 labs who received awards to implement or enhance TB nucleic acid amplification testing programs

APHL initiates the 17th class of EID laboratory fellows

APHL launches the inaugural digital edition of its magazine, *Lab Matters*

APHL successfully completes all activities for the two-year ARRA-funded vaccine-preventable diseases project

APHL publishes *Lessons from a Virus*, a book of stories on the public health response to the 2009 H1N1 pandemic

APHL member labs and CDC respond to outbreak of *Listeria monocytogenes* linked to contaminated cantaloupe grown in Colorado

APHL participates in DHS Biocountermeasures Standards Working Group to promote nationally approved standards for first responders working with non-clinical samples

APHL and CDC convene Newborn Screening Molecular Assessment Program site visit in Washington state

APHL collaborates with CDC-Nigeria and local government to complete Phase II HIV Rapid Test Kit Evaluation and Report in Nigeria, providing recommendations for new national HIV rapid testing algorithm

APHL co-organizes 15th PulseNet Annual Update Meeting and 7th OutbreakNet Conference in Long Beach, CA

APHL participates in DHS Biocountermeasures Standards Working Group to promote nationally approved standards for first responders working with non-clinical samples

APHL and CDC convene Newborn Screening Molecular Assessment Program site visit in Windhoek, Namibia

APHL’s Environmental Health, Public Health Preparedness and Response and Knowledge Management staff publish on Public Health Laboratories and Radiological Readiness in Disaster Medicine and Public Health Preparedness Journal

7th Annual Corporate Leadership Council Meeting is held in Salt Lake City, Utah

APHL forms a culture independent diagnostics subcommittee

APHL and CDC convene Data Collection Consultant meeting as part of Laboratory Efficiencies Initiative

CDC and APHL host meeting with representatives from public health labs to identify methodologies to improve labs’ informatics capabilities
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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 Surveillance, Epidemiology and Laboratory Services; Laboratory Science, Policy, and Practice Program Office; Public Health Informatics and Technology Program Office

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 and Nuclear Sciences Unit; Weapons of Mass Destruction Directorate
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Health Resources and Services Administration, Maternal and Child Health Bureau
National Institutes of Health, National Institute of Allergy and Infectious Diseases, Regional Centers of Excellence
National Oceanic and Atmospheric Administration
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
Alliance to Make US Healthiest
American Clinical Laboratory Association
American College of Medical Genetics
Association of Food and Drug Officials
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