Leading the Labs that Protect the Nation’s Health

Association of Public Health Laboratories
APHL:
ANALYSIS.
ANSWERS.
ACTION.

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.
The Association of Public Health Laboratories (APHL) protects the public’s health by strengthening governmental health laboratory systems in the US and globally. Its member institutions, known as “public health laboratories,” detect health hazards and generate scientific data to inform public health action.

A global leader in laboratory science, practice and policy, APHL supports member laboratories and public health partners with laboratory guidance, high-quality training, national policymaking, leadership development, crisis response and development of laboratory information management systems, among other services. Its expert staff represent diverse disciplines, from infectious disease, environmental health and food safety to newborn screening and public health preparedness.

Founded more than 60 years ago, APHL served initially as a forum for directors of state health laboratories to collaborate and exchange information. Over time, the association expanded its membership to include other governmental laboratories working in public health: local health laboratories and state environmental, agricultural and food safety laboratories. APHL membership now exceeds 800 institutions and individuals, including core laboratory members, as well as federal officials, corporate partners, students and other interested parties.

A 501c3 nonprofit organization, APHL is funded through agreements with the Centers for Disease Control and Prevention and other federal agencies, as well as member dues, sponsorships, and revenue from products and services.
**Quality Laboratory Science and Systems:** APHL advances the quality of laboratory science and practice through transfer of new diagnostic methods and technologies, training and leadership development, publication of laboratory practice standards, development of management tools, liaison with the corporate community to spur evaluation of new technology and support for a sustainable public health laboratory system.

**Emergency Response:** APHL serves as a coordinating center for laboratory response to disease outbreaks, natural disasters and other public health threats and emergencies. The association convenes laboratory and health partners to harmonize response activities, disseminates information from national authorities and provides technical assistance to participating institutions. It also supports the Laboratory Response Network with training, quality improvement activities, surge capacity, exercise planning, policy development and outreach to partners.

**Global Health:** With experience in over 50 countries on five continents, APHL supports the development of laboratory systems worldwide. The association works with ministries of health to create national laboratory strategic plans, manages laboratory renovation projects, implements laboratory management systems, and offers technical and management training workshops. It provides additional training for senior laboratory professionals through its in-country consultants and through the APHL International Institute for Public Health Laboratory Management.
**Laboratory Informatics:** APHL is a leader in laboratory informatics with over ten years’ experience providing technical assistance in areas such as laboratory information management system (LIMS) implementation, standard adaptation, vocabulary and terminology, and message mapping in the US and abroad. In addition to governmental laboratories, the association tailors informatics solutions for state and local health agencies, federal agencies and others. AIMS, APHL's secure, cloud-based messaging services platform, supports more than 80 messaging partners.

**Training and Leadership Development:** APHL offers high quality continuing education programs for public health and clinical laboratory scientists; prepares emerging leaders for senior management positions through its National Center for Public Health Laboratory Leadership; manages fellowship and traineeship programs and promotes careers in public health laboratory science and practice. The association also convenes national conferences and webinars on critical issues in laboratory science.

**Policy:** APHL informs the development of national health initiatives and public health policy through expert Congressional testimony, comments on proposed regulations and representation on federal advisory committees and other national forums. APHL engages stakeholders in policy discussions by disseminating statements and educational materials on priority issues and serving as a liaison among US public health laboratories, federal agencies, and corporate and other partners.

**Research and Evaluation:** APHL conducts research to determine the needs and document the capacity and capability of US public health laboratories through various data collection methods. Data are used to assess progress towards program objectives and inform decisionmaking about the association.
Coordinating Laboratory Response to Infectious Disease Threats

APHL functions as a coordinating center for laboratory response to disease outbreaks. For example, during the Zika response of 2016-17, APHL played a key role in the deployment and ongoing evaluation of assays to detect the virus and coordinated testing for laboratories with gaps in capability. APHL also worked closely with federal partners at CDC and FDA to respond to laboratory questions as testing recommendations evolved.

Yet even as the Zika response unfolded, APHL was responding to other infectious disease threats. The association worked closely with CDC to provide training and informatics support to launch the Antimicrobial Resistance Laboratory Network (ARLN). This network will provide the first national surveillance system for some of the deadliest antibiotic-resistant bacteria.

In addition, the vaccine preventable disease (VPD) reference centers—all APHL member laboratories recruited and supported by the association through its collaboration with CDC—were busy testing thousands of specimens linked to the largest domestic outbreaks of measles and mumps in many years.
Strengthening the National All-hazards Laboratory Network

APHL is a founding partner of the Laboratory Response Network (LRN), the national all-hazards network charged with laboratory response to biological, chemical and radiological emergencies. Since its inception in 1999, APHL has been dedicated to making the LRN stronger via preparedness exercises, scientific workshops, support for near real-time electronic threat surveillance and other activities.

Recently APHL identified laboratories to evaluate the biosafety characteristics of technologies under consideration for LRN deployment; recruited APHL member laboratories to conduct a comparative study of two assays used to detect ricin toxin; and, with CDC, developed a tool to help LRN laboratories rapidly identify supplies needed to test for specific biothreat agents and calculate the cost of surge events. Currently the association is expanding training for clinical laboratories to improve biosafety practices.
Promoting Global Health Security

With its commitment to strive for “a healthier world”—the APHL vision—the association works across the globe. It has been a key laboratory partner in the President’s Emergency Plan for AIDS Relief (PEPFAR) since this US aid program began in 2003. And it is a supporter of Global Health Security efforts—an ambitious, international effort “to accelerate progress toward a world safe...from infectious disease threats.”

In addition to addressing discrete problems—such as developing national plans and implementation of activities to support viral load scale-up in Zambia and Zimbabwe—APHL is focused on the big picture: building sustainable laboratory systems to address national public health priorities.

The association provides technical assistance to help governments develop national strategic plans that outline steps for expanding access to laboratory diagnostic and surveillance testing and provide guidance for effective management of donor funds. With APHL assistance, more than a dozen countries have developed or begun work on such plans, including Ghana, Uganda and Kenya.

Another important effort is the development of paper-based and electronic laboratory information management systems (LIMS) and databases to support everyday laboratory operations—such as analyzing test results and tracking supply inventory—and to provide timely, accurate data for national health planning. To date, APHL has implemented a LIMS in more than 100 laboratories worldwide, and its LIMS guidelines have circulated to many more laboratories through CDC and the World Health Organization.

APHL has also been a leader in professional laboratory training—both for laboratory managers and bench staff. The association regularly offers workshops and seminars in international settings and sponsors the APHL International Institute for Public Health Laboratory Management. This unique educational resource has served senior public health leaders from across the world.

Crosscutting all of the association’s international work is an emphasis on partnerships. As one example, the association played a key role in establishing the African Society for Laboratory Medicine (ASLM), an organization created to strengthen laboratory collaboration across the continent. APHL is now supporting development of the African Public Health Laboratory Network, which is modeled on the US Laboratory Response Network. ASLM serves as the administrator for the new system.
Revolutionary Changes in Food Safety

In 1996, APHL co-founded the United States’ first nationwide laboratory surveillance network for foodborne disease—PulseNet. Today, the association continues to support the transformation of this network through implementation of whole genome sequencing (WGS) in PulseNet laboratories. APHL and CDC are helping member laboratories strategically phase out old technology in favor of WGS, which can effectively provide higher discrimination and more genetic information about each pathogenic strain, including serotype, virulence information and drug-resistance profiles.

In parallel work, APHL is supporting FDA’s GenomeTrackr network, which focuses on prevention of foodborne outbreaks and traceback through sequencing of Listeria and Salmonella isolates from food and from food production, processing and distribution environments. The GenomeTrackr database can link specific genomes to contaminated food products and help public health authorities pinpoint the source of outbreaks much faster.

To assure state testing data can be confidently used for regulatory actions, APHL collaborated with sister associations and FDA to help over 30 human and animal food testing laboratories achieve ISO/IEC 17025:2015 accreditation. The integrity and scientific validity of laboratory analytical data and the acceptance of state data by regulatory agencies remains critical to the success of an integrated food safety system.
Supporting Genetic Screening of Newborns

State public health laboratories screen nearly all (97%) of the over four million babies born in the US each year for genetic and metabolic conditions, as well as hearing loss, to prevent death or a lifetime of severe disabilities. Every year in the US, over 12,000 babies’ lives are saved or improved by newborn screening.

APHL supports members’ work in national and international laboratory-based newborn population screening. It develops strategies, training, assessments and tools to advance laboratory practice and address changes in the newborn screening field. It publishes position statements, guidelines, survey analysis and white papers, and sponsors the principal conference in the field, the Newborn Screening and Genetic Testing Symposium.

Through a cooperative agreement with the Genetic Services Branch of HRSA, APHL also manages the Newborn Screening Technical assistance and Evaluation Program (NewSTEPs). NewSTEPs provides data, technical assistance and training to newborn screening programs nationwide and assists states with quality improvement initiatives. The program also maintains a comprehensive online resource center to support state newborn screening programs and stakeholders.
Protecting Residents, Resources from Chemicals in the Environment

APHL is a leader in the field of biomonitoring, a process that measures levels of environmental chemicals in human tissues and fluids. To advance the science and assure comparable information between government programs, the association has launched the National Biomonitoring Network (NBN) in collaboration with CDC. NBN will guide members on study design, test methods, strategies for sharing biomonitoring findings and related topics.

APHL has worked for years with the US Environmental Protection Agency to assure the safety of drinking water and recreational waters. An agency-wide Memorandum of Understanding provides the opportunity to connect on a variety of issues including emerging contaminants, pesticides and emergency preparedness.

The association also works to connect public health and environmental laboratories to the greater environmental health system to inform public health policy and intervention.
Delivering Lab Data Electronically

Recognizing data’s central role in public health practice, APHL has long been a leader in public health informatics. In 2005, the association began the Public Health Laboratory Interoperability Project (PHLIP), a partnership with CDC to implement national, electronic influenza reporting for near real-time flu surveillance. Today, 48 states, three local public health laboratories and one military laboratory send influenza data to CDC using APHL-developed protocols.

APHL’s informatics program has expanded dramatically over the past decade. Its collaboration with CDC now involves technical assistance to public health agencies to help them achieve state-of-the-art capabilities for implementing electronic laboratory reporting from a range of partners. APHL also is working with five antibiotic resistance regional testing labs (Texas, Washington, Maryland, Tennessee, Wisconsin) to exchange test orders and results electronically with their submitting laboratories for carbapenem-resistant Enterobacteriaceae (CRE) colonization.

In addition, APHL is working to modernize the National Notifiable Diseases Surveillance System by assisting state public health agencies as they adopt new-generation message mapping guides to send case notification messages to CDC. Eventually, all reporting jurisdictions will use the new message mapping guides for all nationally notifiable conditions. The association’s latest contribution to public health informatics is the APHL Informatics Messaging Services (AIMS) Platform—a cloud-based environment that meets HIPAA security requirements and simplifies the validation, translation and routing of electronic public health data. Currently, the platform has more than 80 trading partners who route more than one million messages/month through the system.

Finally APHL continues to share its informatics expertise through consulting services for public and private customers in the US and internationally. Association experts provide customized informatics solutions with a focus on efficiency and regulatory compliance. Services include interoperability improvement plans, personalized staff training, billing consulting and technical assistance for adoption of LOINC, SNOMED and HL7 codes and standards.
Educating Policymakers and the Public

APHL is a forceful advocate for public health laboratories. Its goal is to educate policymakers and the broader public about the indispensable—and largely unseen—work of the nation’s governmental laboratories, while assuring these laboratories have the resources they need to maintain preparedness for public health emergencies.

Its policy staff arrange for expert Congressional testimony, guidance on legislative proposals and comments on federal regulations impacting public sector laboratories. APHL was, for example, a strong supporter of reauthorization of the Newborn Screening Saves Lives Act. More recently, association experts spoke to US Congressional appropriations staff to explain the urgency behind a presidential request for funding for the Antibiotic Resistance Solutions Initiative.

APHL’s communications staff inform and engage the public through the association’s blog, social media sites, website and non-technical publications. They collaborate with staff subject matter experts, members and partners to draw attention to critical public health issues. For example, a 2013 campaign, organized in connection with the 50th anniversary of the first mandated state test for newborn screening, publicized the value of newborn screening in protecting an infant’s health.
One of APHL’s highest priorities is to assure a pool of technically qualified public health scientists and effective laboratory leaders who can respond to homeland security threats.

In the face of a serious workforce shortage, APHL established its National Center for Public Health Laboratory Leadership in 2002. The Center is dedicated to equipping mid-career professionals with the skills needed for senior management positions and has graduated six classes of emerging laboratory leaders, several of whom have advanced to public health laboratory directorships. In 2014, the Center joined with APHL’s Global Health program to launch its first international Emerging Leader Program.

Other Center activities include development of leadership assessment tools, an annual orientation program for new public health laboratory directors, and LEAN quality improvement training for public health laboratorians. The Center also published Competency Guidelines for Public Health Laboratory Professionals to assist laboratory and human resource professionals to determine job competencies. The publication was developed in collaboration with APHL members and partners.
In addition to leadership development, APHL also offers continuing education for public health and clinical laboratorians. Working with CDC and other federal partners, the association sponsors workshops, seminars, online courses, webinars and other educational opportunities.

Finally, APHL convenes conferences for public health leaders including the:

- Four-day APHL Annual Meeting
- Integrated Foodborne Outbreak Response and Management (InFORM) Conference (co-sponsored by APHL, CDC, USDA, US FDA)
- PulseNet/OutbreakNet meeting (annual, co-sponsored by CDC, US FDA, CSTE)
- Newborn Screening and Genetic Testing Symposium (held every 18 months, co-sponsored by HRSA and the International Society for Neonatal Screening)
- National Conference on Laboratory Aspects of Tuberculosis