2019 ANNUAL REPORT

Highlighting the real-time impact of the association’s work in the United States and around the world, through the voices of our members.

https://aphlannualreport.org
Past readers of APHL’s annual report will notice something new afoot this year. Instead of attempting to chronicle the major achievements of all our programs—never an easy task—we are highlighting the real-world impact of the association’s work in the United States and around the world, through the voices of our members.

As ever, the association is grateful for the support of our members and federal partners—including (but not limited to) the US Centers for Disease Control and Prevention, Food and Drug Administration and Health Resources and Services Administration—and all of our collaborators.

We find ourselves in extraordinary times, and have many challenges to meet in the coming months. But every challenge is a reminder of why we do what we do, and why we are so grateful for the ongoing support of our public health community.
BY THE NUMBERS

50 STATES
received direct assistance for conversion to BioNumerics 7.6 for primary foodborne surveillance using whole genome sequencing.

566,111 PATIENTS
tested at APHL-supported labs in Zimbabwe (October 1, 2018 to September 30, 2019).

82,049 specimen results submitted through the reporting portal for the AR Lab Network.

200+ trading partners in AIMS

$3.2 MILLION
distributed by APHL to support newborn screening continuous quality improvement initiatives.

$4.1 MILLION
value of instruments and supplies procured by APHL to support continuing crisis response efforts in Puerto Rico, US Virgin Islands and Houston, TX.

441 public health and clinical laboratory professionals who attended a Packaging & Shipping seminar

$67,500 distributed by APHL to provide support to five regional consortia for innovation projects.

$30,000 distributed to three public health laboratories for Laboratory System Improvement Program gap projects.

27 FELLOWS
filling positions in public health laboratories related to antimicrobial resistance, bioinformatics, infectious diseases and newborn screening bioinformatics.
In Washington, DC, the Department of Forensic Sciences Public Health Laboratory— an APHL member—detected vitamin E acetate in vaping cartridges linked to the outbreak.

The US Centers for Disease Control and Prevention (CDC) considers vitamin E acetate a “chemical of concern” in an outbreak of e-cigarette, or vaping, product use associated lung injury (EVALI) that, as of December 2019, has impaired over 2,561 US residents (most under age 35) and killed 55 people. Work done by the District of Columbia Department of Forensic Sciences Public Health Laboratory provides further evidence implicating the substance in the outbreak.

“We had never seen vitamin E acetate in a vape cartridge before 2019,” said Luke Short, PhD, chief of the public health laboratory’s chemistry section. “And the first [outbreak] case sample we got, it was there.” In fact, vitamin E acetate was found in at least one vape cartridge from each DC outbreak patient who provided cartridges for testing.

The findings of the DC Public Health Laboratory are especially significant since it is perhaps the only public health laboratory to routinely test vape cartridges during the two years before the outbreak began. When DC saw its first cases of EVALI, it could refer back to the historical data showing the absence of vitamin E acetate in vape cartridges before summer 2019.
During just two months in early 2019, Utah’s largest medical system, Intermountain Healthcare, sent about 18,000 initial electronic case reports for five priority illnesses to the state health department: pertussis, Zika virus, salmonellosis, chlamydia and gonorrhea. Patient data for these “notifiable diseases”—just five of the 70 or so conditions whose reporting is required by Utah law—flowed through AIMS, APHL’s secure, cloud-based platform that will eventually replace all paper reporting for Intermountain providers.

Jason Barnes, a senior health informaticist at the Utah Department of Health, is at the receiving end of that data. He said, “We want to let providers spend as much time as possible taking care of their patients. But they also have a public health responsibility to report certain communicable diseases to make sure those diseases don’t spread throughout Utah… we need to know what diseases are out there in the population.”

The AIMS solution uses data from electronic health records and applies set rules (which vary from jurisdiction to jurisdiction) to determine whether or not the data are reportable to health authorities, saving time for doctors and nurses while providing more timely, complete and accurate data. The goal? To make data flow faster than diseases can spread.
In Kenya, APHL helped to assure the accuracy of the nation’s laboratory testing by training biomedical engineers to maintain, calibrate and certify laboratory equipment.

In 2019, APHL partnered with the American International Health Alliance to provide specialized, multi-week training to six Kenyan biomedical engineers. These engineers—graduates of Kenya’s National Public Health Laboratories Centre of Excellence for Equipment Calibration, Certification and Training—are now qualified to maintain, calibrate and certify centrifuges, refrigerators, microscopes and other laboratory equipment in facilities across Kenya. That equipment, in turn, will enable accurate testing for HIV, TB, malaria and other important diseases in this rapidly developing East African nation of over 50 million people.

“Before this program began, the equipment was in the lab for ten years without calibration,” said Thomas Gachuki, the deputy head and quality assurance manager of Kenya’s Division of National Public Health Laboratories (depending on the equipment, calibration should occur regularly every year). Now, he said, instead of relying on distant contractors for equipment maintenance and calibration, “we can do this and sustain it within the government,” saving time and money and helping the country achieve its public health goals.
Thanks to genetic testing, we know more about disease-causing microbes than ever before. A molecule-level view of a bug like *Legionella*, for example, empowers scientists to separate out clusters of related disease cases from a cacophony of random background noise. This information, in turn, enables health authorities to focus their limited resources where they will have the biggest public health impact.

Since 2013, APHL has been working to assure public health laboratories have both the technology and workforce expertise to generate and interpret genetic sequencing or “bioinformatics” data. Today, the cumulative effect of this support is evident in places like the Minnesota Public Health Laboratory.

In 2016, the laboratory was the first state public health laboratory to host a fellow through the APHL-Centers for Disease Control and Prevention (CDC) bioinformatics fellowship program. In 2019, the laboratory supplied two instructors for APHL/CDC bioinformatics academies.

In 2013, the Minnesota Public Health Laboratory sequenced 58 samples of just one pathogen type—*Salmonella*. In 2019, the laboratory sequenced 5,000 samples spanning more than 34 different pathogens. “Without all the support APHL has provided to our laboratory, directly and indirectly, we wouldn’t be where we are today,” said Sara Vetter, PhD, who manages the laboratory’s infectious disease program. “And that would be a great loss for public health.”

On average, 130 Americans die every day from an opioid overdose. But for every fatal overdose there are many nonfatal overdoses. Without data on those who leave the emergency room alive, the US is fighting the rapidly evolving opioid epidemic with incomplete information.

APHL’s Opioid Biosurveillance Task Force was created to close this gap. The task force—which convened its first in-person meeting in 2019—aims to help states implement testing programs for specimens taken from individuals who present to hospital emergency departments with overdoses.

Real-time data on the drugs in circulation and drug combinations favored by overdose survivors could inform public education efforts, alert authorities to the appearance of novel opioids and help gauge the effectiveness of interventions. “The idea is that if we have more information on nonfatal opioid overdoses, we can move our understanding of the problem upstream...before people are dying,” said Ewa King, PhD, director of Rhode Island State Health Laboratories and the task force chair.

LOOKING AT A BIGGER PICTURE FOR OPIOIDS

*In Rhode Island, the State Health Laboratories began testing specimens linked to nonfatal opioid overdoses to eliminate a blind spot in public health surveillance.*

EMBRACING NEW TECHNOLOGIES

*In Minnesota, the state public health laboratory’s genetic-testing program grew from 58 samples (of one pathogen) in 2013 to 5,000 samples (of over 34 pathogens) in 2019.*
### 2019 Financials (unaudited figures)

#### TOTAL REVENUE

<table>
<thead>
<tr>
<th>Category</th>
<th>Revenue</th>
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</thead>
<tbody>
<tr>
<td>Grants and Contracts</td>
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<tr>
<td>Membership Dues</td>
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<tr>
<td>Conferences and Exhibits</td>
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<td>Other</td>
<td>888,783</td>
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<tr>
<td>Total</td>
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#### TOTAL EXPENSES

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<tr>
<td>Domestic Programs</td>
<td>46,272,134</td>
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<tr>
<td>Global Health Programs</td>
<td>13,040,931</td>
</tr>
<tr>
<td>Total</td>
<td>59,313,065</td>
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</tbody>
</table>

### DOMESTIC PROGRAMS

- Infectious Diseases: 12,257,698
- Informatics: 9,319,687
- Public Health Preparedness: 8,232,469
- Newborn Screening: 4,547,610
- Food Safety: 3,070,321
- Lab Strengthening/Leadership: 2,383,358
- Environmental Health: 1,287,537
- Member Services: 1,210,738
- Leadership Development: 1,108,414
- Workshops: 1,009,488
- Conferences: 899,455
- Laboratory Systems and Standards: 594,434
- APHL Consulting: 350,925
- Total Domestic Programs: 46,272,134

### GLOBAL PROGRAMS

- Angola: 314,977
- Botswana: 122,003
- Democratic Republic of the Congo: 247,074
- Ethiopia: 121,103
- Ghana: 1,229,623
- Guinea: 14,460
- India: 73,381
- Indonesia: 238,359
- Kazakhstan: 9,310
- Kenya: 737,836
- Mozambique: 1,269,689
- Nigeria: 96,331
- Other Global Health: 1,718,160
- Program Management: 229,742
- Senegal: 69,702
- Sierra Leone: 308,533
- Tanzania: 278,216
- Uganda: 70,425
- Ukraine: 109,876
- Vietnam: 238,248
- Zambia: 2,367,017
- Zimbabwe: 3,176,866
- Total Global Programs: 13,040,931

### CY19 OPERATIONAL EFFICIENCY RATIO

- Program Services: 88.71%
- General & Administration: 11.29%