State Public Health Laboratories Put to the Test With SARS

Little about Severe Acute Respiratory Syndrome (SARS) is typical. It is a new, mysterious virus that has crippled international travel, emptied shelves of surgical masks and instilled fear in millions. However, like every major public health crisis, SARS has enlisted state public health laboratories to play a critical, behind-the-scenes role in response and control.

While diagnostic tests became available to state public health laboratories only recently in May, the labs were among the first players to help combat the epidemic. “We were very active in rule-out testing for SARS and used the standard battery of tests for respiratory infections. What differed, however, was our heightened sense of urgency,” explains Katherine Kelley, Director of Connecticut’s Public Health Laboratory.

In Florida, the public health laboratory encouraged physicians to carefully screen patients for high-risk factors like travel to an affected area before submitting samples. The laboratory had the dual role of conducting rule-out testing while at the same time working with the state epidemiology and county health departments to reduce panic through public education.

“Rule-out testing (in North Carolina) made the citizens more comfortable in an environment of panic. Our recent laboratory-confirmed case of SARS became a very hot topic for the media, with calls for mass screening and decontamination,” reports Lou Turner, Director of the NC State Laboratory of Public Health. Rule-out testing had many psychological benefits for local populations.

CDC Partnership

From the perspective of the Center for Disease Control and Prevention (CDC), early on the state laboratories performed a critical function. Betty Robertson, Deputy Associate Director for Laboratory Science, mentions both their activities in rule-out testing and triage on sample collection and shipping. “At the very beginning, CDC had samples from all over the place. Having all of them come from the state laboratories/health departments made a huge difference to us,” observes Robertson.

The labs did not merely support the work of CDC. The relationship more closely resembled a collaboration or partnership. The Wadsworth Center in New York has two coronavirus experts and an active research
PRESIDENT’S THOUGHTS

Dear Members,

Today it is becoming increasingly important for us to view our public health laboratories as the central part of an integrated laboratory system. To protect the public from outbreaks of infectious disease, emerging health threats, exposure to hazardous chemicals, and the possibility of an attack by terrorists using biological, chemical or radiological agents, our nation needs a sustainable, effective network of collaborating public and private laboratories working together to detect, identify and characterize public threats in real-time locally, statewide and nationally.

The central role our laboratories play in this network is dictated by our core functions and responsibilities. At the state and local level, public health laboratories provide the scientific expertise and generate the data needed by state and national public health officials to develop policy and implement protection and control measures that guard the public’s health. To do this effectively, our laboratories need strong working connections with all of the clinical, veterinary, environmental and food testing laboratories within our states. These are the laboratories that may be the first to detect a public threat that our laboratories will need to investigate further.

Our connections with the CDC and other federal agencies also need to be close and well defined. They provide us with the technology, training, funding, leadership, and broad perspective we need to meet our responsibilities and accomplish our missions.

Building an integrated network of laboratories is a challenge. Many real and imagined barriers must be identified and addressed. Yet, never before has there been a greater need or a more widespread interest in developing such an inclusive laboratory system. This of course is driven by the need to prepare for possible acts of terrorism. But the importance of a collaborative laboratory system goes beyond defense. Development of an integrated laboratory network will lead to quality laboratory practice, increased recognition of public health laboratories and proficiency in detecting, identifying and responding to all hazards that threaten the public’s health.

To foster and sustain a robust laboratory network, we must work with our partners to create the conditions for its growth. First, there must be genuine mutual understanding. Whether it is the relationship between our public health laboratories and other laboratories within our respective states, or between our laboratories and federal agencies, each party must be clear about the other’s role — what it actually is, not just what it is perceived to be. Second, for network partnerships to be sustainable, there must be identifiable value for all of the entities involved. This implies clear articulation of structure and responsibilities. Finally, there must be ongoing communication to demonstrate value, promote improvements, reinforce mutual understanding and make it clear that everyone has an essential role.

From local to national, the laboratories of our nation are becoming less independent and more interdependent, and that can be a good thing.

Sincerely,

Norm Crouch
President
EXECUTIVE DIRECTOR’S NOTE

Dear Members:

Recently I had the privilege to represent APHL at three forums devoted to workforce issues. These provided a venue for discussion of related public health laboratory issues and a means to identify opportunities for collaboration with national and international partners.

The first meeting, convened by the Institute of Medicine, Board of Global Health, focused on the infectious disease workforce. My presentation examined challenges in recruiting, retaining and training top public health laboratory professionals who must have the grit and the savvy to tackle emerging infectious disease threats. APHL was the only laboratory group asked to participate. To me this spoke volumes. “You better get it right—they’re counting on us,” said the voice in my head. My thanks to the members of the APHL infectious disease, and training and education committees for their input on this presentation.

The second forum was an interview on the laboratory workforce conducted for a new study by HRSA’s Bureau of Health Professions. I felt primed for my role as key informant after prepping for the IOM presentation and joining in sidebar conversations at the annual meeting. Still, some of the questions perplexed me: “Have you recent data on...? Can you provide us with the reference for...?” I soon realized that we would need more than anecdotal evidence for APHL to make its case. But the interviewers did grasp a key point: The public health laboratory workforce is even more difficult to track down than its clinical counterpart. This time the little voice was saying, “Better get your act together, or they’ll easily overlook us!”

The last meeting was called to discuss online learning strategies for public health laboratories. Now, this would seem rather ordinary but for the venue—Lyon, France. WHO’s Department of Communicable Disease Surveillance and Response, the same group that coordinated the global response to SARS, called this meeting, which was decidedly different from the others. Here, we talked about portals for e-learning, electronic resource centers, and training laboratory professionals from different regions of the globe in leadership, management and technical issues. We shared APHL strategies, including the highly successful National Laboratory Training Network, low-tech courses offered through our global health program, and activities planned by our new National Center for Public Health Laboratory Leadership.

We benefited greatly from the exchange. We heard about the development of a Web portal — one-stop shopping on the Net for public health laboratorians across the globe — and the need for on-the-job as well as distance-based education.

We also learned that WHO/CSR/Lyon considers APHL a full partner in furthering the development of public health labs across the world. This was driven home when talk turned to the possibility of APHL seeking status as a WHO Collaborating Centre for public health laboratories. And there was more. A week earlier, this same WHO program had hosted an informal consultation on the core functions of public health laboratories. Dr. Burt Wilcke, APHL’s representative at this meeting, reports that the discussion centered on the core functions document that APHL published a few years ago. A likely outcome is a future World Health Assembly resolution based on the APHL model. This time that same voice said: “Not bad!”

Please see the coverage of this year’s meeting beginning on page 12. An article on the passing of Dr. Joe Joseph, Maryland’s laboratory director, follows on page 18. Dr. Joe was a two-term president of APHL and the 2002 Lifetime Achievement Award winner. His sound advice and constant support for APHL will be greatly missed.

Sincerely,

Scott Becker
program focused on host-virus interactions and coronavirus replication strategies and vaccines. Jill Taylor, Director of the Clinical Virology Program at the Wadsworth Center, explains, “In New York the laboratory is contributing to knowledge base, not just receiving it.”

Testing Challenges
After CDC developed two diagnostic tests, state public health laboratories played a more visible and complex role in the effort to combat SARS. They face unique challenges in bringing online these ELISA and PCR assays, which detect antibodies in serum and the genetic material of coronavirus in various specimens. Using a newly developed test on a new disease—even when testing technologies are familiar—can make interpretation problematic. SARS diagnosis remains dependent on clinical and epidemiological findings rather than laboratory tests alone. Not fully comfortable with the PCR assay for SARS because much about it is unknown, North Carolina is very cautious with samples to prevent transmission of foreign agents. Dean Willis, Chief Microbiologist at Florida’s Bureau of Laboratories, reports a different kind of challenge. He finds it difficult to get reagents and materials from outside CDC. “The Center does not provide commercial PCR extraction reagents to isolate nucleic acids. Issues with vendors and the vagaries of the state purchasing system have caused problems.”

Connecticut feels confident with ELISA, describing a sense of “déjà vu” from previous work with hantavirus. However, both Connecticut and Washington State have faced delays with the PCR assay because they cannot simply adopt CDC’s institutional review board (IRB) approval. The Food and Drug Administration (FDA) required CDC to submit the assays for IRB approval, but in some cases states must wait for their own IRBs to meet before they can begin testing. In this way, laboratories can face both legal and technical problems in bringing the diagnostic tests online. Informed consent paperwork, another FDA requirement, complicated matters in numerous states.

Small Threat, Big Burden
As of July 8, 2003, the U.S. reports 74 probable and 8 laboratory confirmed cases of SARS. It is alarming that although the SARS epidemic is relatively contained in this country, it has taxed the already overextended public health laboratories. The U.S. experience hardly resembles life in Canada or Asia where SARS made a ghost town of Toronto’s Chinatown, closed hospitals and schools and contributed to unemployment. SARS testing alone may not exert a great deal of pressure, and most public health laboratories tested dozens rather than thousands of samples. However, SARS is one of many mounting pressures.

Acknowledging this burden, APHL has asked Congress for an additional $10 million to support SARS-related activities. “SARS has been a tough demand on staff,” explains Dr. Kelley. “We are going to have to deal with West Nile in the very near future and have already faced significant staffing losses due to early retirements. Things are tight.” Connecticut has requested additional funding specifically to offer overtime opportunities. Washington State requires supplemental funds for laboratory supplies and equipment. With only one BSL-3 lab for its bioterrorism response activities, mycobacterium work and SARS, the laboratory is getting crowded.

As usual, laboratories are at the forefront of crisis response, safeguarding the public’s health. They have played no small part in what many consider to be an effective response to SARS. While preparing for bioterrorism consumes scarce resources, increased capacity can be helpful in confronting new threats. Many laboratories including North Carolina’s and New York’s already had BT staff on hand to reassign to SARS testing.

Though labs have taken advantage of the systems in place, they are finding themselves spread thin. Furthermore, it appears that the diagnostic tests for SARS will not replace rule-out testing and thereby decrease workload. In the short-term, the demands on the laboratories will be growing.
running the newly released PCR assay and an in-house assay in parallel. It is also shipping samples to the CDC for confirmation testing. “Rule-out testing is not going away. We will be doing rule-out and SARS testing because we face the same dilemmas of nonspecific respiratory symptoms and lack of knowledge about multiple or co-infections,” cautions Kelley.

All the laboratories can do right now is attempt to prepare for a new disease that continues to elude us. We don't know about duration, seasonal variation or re-occurrence. What we do know is that the public health laboratories will continue to be crucial to the battle.

### Environmental Health

**Linking State Biomonitoring Programs to Federal Research**

The U.S. Environmental Protection Agency (EPA) and the U.S. Geological Survey (USGS) offer significant capabilities and partnering opportunities for state biomonitoring programs. Federal research at these agencies covers a broad range of topics including health effects of mercury, coal, arsenic and pesticides. The presence of toxic chemicals such as these can be tested in humans using biomonitoring techniques.

EPA and USGS recently held public meetings showcasing their research in environmental health. EPA held the “2003 Science Forum: Partnering to Protect Human Health and the Environment” in Washington, DC, May 5-7, 2003; one month earlier, USGS convened “Natural Science and Public Health: Prescription for a Better Environment” in Reston, VA, April 1-3, 2003. Both agencies approach environmental health from the perspective of “environment first,” in contrast the Centers for Disease Control and Prevention (CDC) views biomonitoring from a health perspective. Nonetheless, this research can be linked to biomonitoring and may prove useful to states planning biomonitoring programs in the coming year. As states build their biomonitoring capabilities, they may be able to work with state and outside researchers on studies like those listed here.

Selected studies conducted at or in progress at USGS:

- Health Risks from Long-term Mercury Exposure, Gorilovka, Ukraine
- Arsenic in Ground-Water Resources of the U.S. Bioaccumulation and Mobility of Cadmium in Willow and Soils, Alaska – Implications for the Health of Browsing Animals
- Role of Water-Quality Monitoring in Studies of Breast-Cancer Incidence in Suffolk County, New York
- Ground-Water Quality and Childhood-Leukemia Cluster Near Fallon, Nevada
- USGS and NCI Data Together Show No Change in WM Bladder Cancer Mortality Risk in US for Drinking Water Arsenic Levels Between 3 and 59 ug/l
- Rapid Assessment of an Urban Hazard: Spectroscopy of the World Trade Center Dust
- National and New Jersey Statewide Reconnaissance Surveys of the Occurrence of Radium-224 in Public Ground-Water Supplies
- Pharmaceuticals, Hormones, and Other Organic Wastewater Contaminants in U.S. Streams

The EPA Science Forum included sessions on emerging technologies, the Year of Water, homeland security and government partnership. Most relevant were researchers’ poster presentations. A sampling:

- Assessing Exposures to Environmental Contaminants in Minority and Low Income Communities
- Developing Analytical Methods for Gathering Nationwide Occurrence Data for Chemicals on the Drinking Water Contaminant Candidate List (CCL)
- Risk-Screening Environmental Indicators (RSEI): Assessing Chronic Human Health Impacts of Toxic Chemicals in Communities
- A Community-Based Children’s Pesticide Exposure Measurement Study in Jacksonville, Florida

Biomonitoring, continued on page 6...
A Recipe for Food Safety -
And for Other Laboratory Functions

Recent outbreaks of foodborne illness, a predicted rise in diseases caused by foodborne agents, threats of a terrorist attack on the U.S. food supply: There is ample reason to direct resources to food safety. APHL continues to move forward in this area. The association is now recruiting for a full-time program manager to oversee food safety initiatives, and recently established a Food Safety Committee to advise on the laboratory’s role in food testing, food security and prevention of foodborne disease.

APHL’s newly published report, A Recipe for Stronger Food Safety Testing Programs, represents another contribution to this subject area. The report details the findings and recommendations of the APHL Food Safety Laboratory Capacity Assessment Project, which assessed public health laboratory capacity, both current and optimal.

Current vs. Optimal Laboratory Capacity
Current capacity was evaluated in a survey of state and territorial public health laboratories conducted in August 2001. Though this data reflects pre-September 11th laboratory capacity, it is still indicative of the problems that thwart development of public health systems and public health laboratories in particular. Ideal laboratory capacity and capabilities were established at a consensus conference of 70 laboratory experts in January 2002.

The resulting report provides detailed recommendations on topics ranging from laboratory certification and crisis planning to information management systems and storage of isolates. Major findings follow:

- State public health laboratories are faced with a shortage of doctoral-level food safety microbiologists and chemists to conduct food safety testing. Public sector salaries remain non-competitive. A long-term national strategy for building a public health laboratory workforce is critically needed.
- A complex mix of entities and jurisdictions are involved in the response to foodborne illnesses. Laboratories must coordinate the activities of multiple state and federal agencies in order to respond to a food safety threat.
- Gaps in emergency preparedness may hamper state public health laboratory readiness for major foodborne disease outbreaks and food-related terrorist incidents. Laboratories lack space, staff, equipment and emergency communication tools needed to handle a foodborne disease emergency.
- State public health laboratories may face a “chemistry gap.” Only half of state laboratories had basic food chemistry capability as of August 2001.
- Policymakers play a pivotal role in assuring that laboratories have adequate funding, legal authority and infrastructure to respond to food safety emergencies. Laboratories are confronted with a chronic lack of funding plus incomplete reporting and referral of samples from clinical laboratories.

Recommendations Go Beyond Food Safety
Many of the 83 recommendations in the report extend beyond food safety to other laboratory functions. Number nine, for example, states, “The organization of laboratories is not as significant as their ability to communicate, coordinate funding, and share resources. Working relationships among state public health programs should be formally defined in a written communication plan before a crisis arises [emphasis added].” Such recommendations make the report of potential interest to laboratory professionals outside the field of food safety.
Global Health

President Cites Capacity Building for Labs at Signing of HIV/ AIDS Act

President Bush identified public health laboratories as potential recipients of funding authorized under the HIV/AIDS Act. At a signing ceremony on May 27, 2003, the President stated, “We will train doctors and nurses and other health care professionals so they can treat HIV/AIDS patients. We will renovate and, where necessary, build and equip clinics and laboratories.” APHL’s Global Health Training Specialist Dr. Eba On’gele attended the signing ceremony.


If appropriated by Congress, funding from the HIV/AIDS Act will be used to prevent 7 million new HIV infections, treat 2 million HIV-infected people, and care for 10 million HIV-infected individuals and AIDS orphans. Initiatives will involve voluntary testing and counseling plus advanced antiretroviral treatment for infected individuals.

At APHL, the international program provides laboratory assessment, technology transfer and training to designated under-resourced countries as part of CDC’s Global Aids Program (GAP). New resources continue to be developed. For example, the Global Health Committee is developing training materials for laboratory directors in the areas of laboratory management and quality assurance/quality control. APHL’s On’gele notes, “The President was right to mention laboratories. You can’t prevent and control disease without well-equipped, well-managed laboratories.”

Informatics

Finding Solutions for LIMS

Public health laboratories in search of a laboratory information management system (LIMS) now have three tools to assist them.

The first is a document detailing the requirements for a LIM system that was developed collaboratively by participating public health laboratories (PHLs), APHL, and the Public Health Informatics Institute. The document will be available on the APHL Web site in August. Members will receive copies later this summer.

A second tool, an assessment of commercial LIMS vendors, conducted by an information systems consultant on behalf of APHL, is available to help PHLs narrow their search for a commercial vendor product. The assessment was based on each vendor’s own rating of its product’s capabilities versus each of the requirements, vendor-provided supporting information and evidence for the rating, and the consultant’s review. The vendor assessment categorizes the 12 LIMS products that best meet the requirements into three tiers. A summary PowerPoint presentation developed by the information systems consultant will be sent to the APHL membership. Vendor ratings will not be released but consultation on the ratings will be available to the APHL mem-

LIMS, continued on page 8...
Newborn Screening

PHIN Conference Launches Informatics Collaboration

The Public Health Information Network (PHIN) held its first conference from May 13-15, 2003, in Atlanta. Developed as a partnership between ASTHO, NACCHO, APHL, NAHDO, NAPHSIS, CSTE and the CDC to serve as an umbrella for public health informatics initiatives, PHIN aims to systematize communication of public health data and information. Examples of related initiatives include NEDSS, the LRN, Health Alert and Epi-X. Within the laboratory community, commercial, public health, veterinary, food testing, environmental and clinical labs are likewise joining under the aegis of PHIN to improve data exchange and reporting.

The conference addressed several major PHIN goals including:

- Expanding communication between local laboratories and federal agencies, such as the CDC, EPA and USDA.
- Ensuring system compatibility among states.
- Facilitating sharing of “best practices” and information systems among states.
- Evaluating the needs of state and local public health laboratories and systemizing standards, so that clinical and private laboratory facilities may interface more effectively.

Conference sessions examined data exchange, PHIN-related IT systems, workforce requirements, disseminating information to the public, data exchange and modeling, NEDSS deployment, vaccine administration, early detection, and terrorism preparedness. PHIN plans to continue to offer education and training programs to ensure that common technology and vocabulary are well understood and used in consistent ways.

To review the conference presentations, see www.cdc.gov/phin/conference_presentations/index.htm.

Newborn Screening

Genetics Communications Meeting

From May 1-2, 2003 in New York, the Centers for Disease Control and Prevention and the Mount Sinai School of Medicine hosted a meeting entitled “Communication: Key to Appropriate Genetic Test Referral, Result Reporting and Interpretation.” The meeting explored communication issues that arise between clinical practices and public health laboratories in genetic testing, focusing on how
patient-specific information is collected, communicated and used in medical decision making.

Participants included a wide range of professionals involved in providing genetic testing services to the public, ordering tests and using test reports. From physicians and policy makers to laboratory directors and genetic counselors, attendees represented individual and group clinical practices, professional organizations and government agencies.

Cystic fibrosis (CF), recently added to New York’s mandated panel of disorders tested in newborns and found in many mutations, served as an ideal model for discussion. Participants attended short presentations, panel discussions and workgroups on ordering and reporting issues for diagnostic and carrier testing. An additional evening talk focused on the European community’s challenges with regards to CF testing and laboratory quality assurance practices.

The meeting not only informed, but revealed problems in the field such as the need for fully comprehensive tests reports clear to a wide range of users beyond the referring physician. Furthermore, discussion identified significant confusion regarding the use of genetic terminology contained within test requisitions and reports. There are no standard data formats for either test requisitions or reports, and recommendations made by ACMG, NCCLS, and others provide guidelines on content but not format. They also do not specify collection procedures (e.g. standards for assessing ethnicity).

In an effort to address these deficiencies, participants recommended requisitions and reports with standard data fields and terminology. Standards should be adaptable not only to those who use requisitions and reports for clinical decision-making, but for reimbursement and evaluating test validity and utility. Further recommendations include the development and piloting of a process for assuring clinical information is appropriately collected and available for development of the test result interpretation. Standardized requisitions, reports and processes should advance the field of genetic testing, helping physicians determine which genetic tests to order and how to interpret lab results.

NSQAP Celebrates 25 Years of Service to Newborn Screening Laboratories Worldwide

In July the Newborn Screening Quality Assurance Program (NSQAP) at the Centers for Disease Control and Prevention will celebrate 25 years of service to newborn screening laboratories worldwide. NSQAP has grown significantly since 1978 when it serviced only one disorder at 31 U.S. laboratories. The program now services 35 disorders at 369 laboratories in 53 countries. Harry Hannon, Ph.D., the program’s first director, continues to lead the enterprise.

A dedicated team of twenty-two employees handles 500,000 dried-blood spots annually, covering proficiency testing and quality control services for 35 disorders. This same group produces 27 reports each year.

The Association of Public Health Laboratories, a close partner of NSQAP, congratulates the program on its anniversary, recognizing its many contributions to the global newborn screening community, notably in the areas of quality assurance, training, consultation and research.

QA/QC/PT Subcommittee Meeting

The Quality Assurance/Quality Control/Proficiency Testing (QA/QC/PT) Subcommittee of the APHL Newborn Screening and Genetics in Public Health Committee met on May 8-9, in Atlanta, Georgia. The
subcommittee serves as a liaison between the CDC and state newborn screening programs, facilitating ties and providing input to quality assurance and proficiency testing for CDC’s Newborn Screening Quality Assurance Program (NSQAP).

In a summary of the last subcommittee meeting in Phoenix, Dr. Ken Pass noted that most of the discussion revolved around planning for the first pre-conference workshop on “QA/QC in Newborn Screening.” The pre-conference was a “resounding success” according to the post-evaluations, with over 150 participants in attendance. The subcommittee also considered planning and logistics for the next preconference workshop on QA/QC in Newborn Screening during the symposium in May 2004.

The subcommittee chair, Dr. John Sherwin, discussed previous meetings related to retention of dried blood spots and implications for state newborn screening programs. Dr. Harry Hannon (CDC) noted that the National Committee for Clinical Laboratory Standards has revised its regulations on retention of dried blood spots, but the United States Postal Service (USPS) regulation that went into effect on June 12, 2003 does not address retention. That regulation requires biohazard stickers/labels on specimens. APHL sent an alert email notifying states about the probable USPS regulatory changes for shipping newborn screening dried blood spots on April 28, 2003, and a final notice on June 16, 2003.

Members of the subcommittee also discussed issues relating to acylcarnitines concentration and degradation after storage. Barbara Adam (NSQAP) noted that some acylcarnitines degrade after 3 years of storage (C2 and C3 declined by 50%, and C16 declined by 10%). She also mentioned that storage at -20 does not affect the absolute and internal standards. C5, C5DC, and C18 are the new analytes that will be added to the NSQAP panel later on this year. Dr. Hannon noted that Paul Hardy (Bio-Rad) will make available a “fee-for-service” QC program late 2004, and that the NSQAP was considering covering fewer dose analytes and longer dose response. The subcommittee agreed that changing the kits would lead to a slight difference in recovery. Members also discussed how many analytes they wanted included on the next NSQAP panel, and most members thought eight was appropriate. Some of the members suggested 10-11. The subcommittee suggested that population medians were a good way to set internal standards, and the NSQAP will send a survey on population medians to QC participants. The survey will include questions on analytes and concentration levels. The acylcarnitines set of the quality control specimen certification will be available on July 7, 2003.

Plans are underway for a training workshop on “QC of Tandem Mass Spectrometry (MS/MS)” for bench laboratorians. This webcast panel discussion, a collaboration between APHL, NSQAP, and the National Laboratory Training Network (NLTN), will focus on QC issues of MS/MS.

For more information on the QA/QC/PT subcommittee, please contact Jelili Ojodu, program manager for newborn screening and genetics, jojodu@aphl.org or 202.822.5227 ext. 235.

Policy

Policy a Top Priority for APHL Leaders

APHL convened the first meeting of the newly created Council of Chairs at the association’s annual conference in Richmond, VA. At the top of the agenda was proactive development of policy statements that articulate member values, principles and quality standards for laboratory practice. The Council of Chairs is comprised of the head of each association standing committee.

Member interest in policy development evolved over recent years and crystallized with the establishment one year ago of the Committee on Policy, Planning and Legislation. Chaired by Dr. Ann Willey, the committee is charged with supporting development of association position statements, as well as other policy-related activities. To date, three policy statements have been approved and adopted by the membership; more are under review by committees. This, however, is only a beginning. Members aim to develop a full body of policy to strengthen their collective voice and respond effectively to information requests from the Administration, Congress, the Institute of Medicine and other national organizations.
PulseNet

Improving and Expanding Worldwide

The PulseNet system continues to expand and improve its capabilities to protect the public from foodborne illness. In the United States, the network now includes laboratories in all 50 states plus several cities and counties, and partnerships extend to the federal government where PulseNet members work closely with federal laboratories at FDA and USDA to track the sources of foodborne illness.

PulseNet's growth is not limited to the United States. In Canada, the network is well established under the direction of Dr. Lai King Ng at the Canadian National Microbiology Laboratory in Winnipeg. PulseNet Europe, which recently convened a coordinating meeting, is developing MOU's among participating countries. Likewise in the Asia Pacific Region, a dedicated group continues efforts to build a regional PulseNet system, while in Latin America PulseNet may become a reality in 2004.

Training Tailored to Network Participants

To accommodate staff turnover, the Foodborne and Diarrheal Diseases Laboratory Section (FDDLS) within CDC regularly offers training in PFGE bench protocols and the BioNumerics software now utilized by all PulseNet laboratories. Both group and individual training can be arranged. Individual training is conducted only in Atlanta. APHL facilitated creation of a BioNumerics training manual that has been recorded on CD-ROM and mailed to participating laboratories with scripts that allow certified laboratories to submit online E. coli, Salmonella and Listeria patterns to the national database.

Certification Advancing with New QA/QC Contractor

The rapid expansion of PulseNet USA has delayed the PulseNet certification process. APHL has responded by hiring Christine Steward as the PulseNet QA/QC contractor. She will focus initially on outstanding certification submissions for E. coli, Salmonella and Listeria. She already has reviewed and drafted recommendations for changes to the overall certification process and asked participating laboratories for comments. In addition, Chris will analyze yearly proficiency testing gels required of certified PulseNet laboratories.

Communicating Through Web Board

PulseNet members communicate primarily through the PulseNet web board, a secure Web site that permits exchange of .tiff images of suspected clusters and other documents of interest. PulseNet staff, supervisors and laboratory directors are welcome to subscribe to the web board as are PulseNet international networks and public health officials working in the field of foodborne disease. Laboratory participants are asked to log on to the web board at least once daily to monitor postings of disease outbreaks. In addition to viewing the web board, participants are asked to participate in several conference calls throughout the year, covering state and local activities, troubleshooting and software issues, projects at CDC and APHL, and perspectives from organizations outside the network, such as Applied Maths and BioRad.

Coming to the Pacific Rim

The inaugural meeting of PulseNet Asia Pacific was held in Honolulu, HI in December 2002, with the assistance of Dr. Vernon Miyamoto, Myron Honda and Becky Kanenaka from the Hawaii Department of Health. Participants from Australia, Bangladesh, Hong Kong, Japan, Korea, Malaysia, The People's Republic of China, the Philippines, New Zealand, Taiwan, Thailand and Vietnam discussed the benefits and challenges of forming a PulseNet system in the region, developed an action plan, and formed a steering committee to be chaired by Dr. Kai Man Kam of Hong Kong.
Annual Meeting Explores Labs’ Readiness for Public Health Emergencies

Message To Policymakers: The Devil is in the Details. And the Details Depend on Dollars

At this year’s annual APHL conference emergency response was on the agenda and on participants’ minds. Public health laboratorians are already beginning testing for West Nile virus as summer mosquito populations swell, and are awaiting more information on monkeypox and the prognosis for next winter’s SARS cases. Of course, concerns about possible biological or chemical terror attacks loom over all.

In the face of these threats, the message from the public health laboratory community to policymakers is clear: A strong laboratory response system depends upon myriad components, and these, in turn, depend upon government funding. High-profile testing for anthrax and vaccinia, for example, cannot take place without such basic pieces of infrastructure as electronic information management systems, test equipment and reagents, secure lab facilities, and trained staff.

Bob Martin, who heads the Division of Laboratory Systems at the Center for Disease Control and Prevention, said that state lab directors “must be flexible enough to take on new things as they come along without restructuring or a lot of lag time.” A well-established infrastructure is key to that flexibility.

2003 Award Recipients

Division of Laboratory Systems/PHPPD
A Presidential award in recognition of meritorious service to public health laboratories

Jane Getchell, DrPH
In recognition of outstanding contributions as a member of the APHL Board of Directors

E. Charles Hartwig, ScD
The Lifetime Achievement Award in honor of a lifetime of outstanding leadership, significant contributions and service to the field of public health laboratory practice

James M. Hughes, MD
In appreciation of outstanding leadership in the global SARS response

Katherine Kelley, DrPH
In recognition of outstanding service and leadership as Chair of the Infectious Disease Committee

Dayton Miller, PhD
A Presidential award in recognition of meritorious service to public health laboratories

David E. Mills, PhD
In grateful appreciation for outstanding service and leadership as APHL President
The Board’s mission became clear at the June 7, 2003 meeting in Richmond and subsequent business meeting: to reach out and build relationships while staying grounded at home. The board reached out to partners abroad by discussing a Memorandum of Understanding with the Canadian Public Health Laboratory Network and took steps to foster more integration between federal agencies by accepting a motion to create a “Federal Interagency Working Group.” The board hopes to convene this working group around the ASTHO/NACCHO meeting in September. By welcoming Aloysius Hanson, the board also demonstrated its desire to serve a wider membership base. He will participate in Board activities as the first of two Associate Member Representatives.

Other Board Actions
The Board directed the EPR Committee to consider the development of a policy for continued evaluation of the use of rapid assays for select agents. The board requested that the committee submit a report on this issue by the September board meeting.

Other Business Meeting Actions:
- Received reports from all committees
- Received report from Eric Blank on the ACET and ASTHO Management Committee

Board of Directors, continued on page 15...
Martin noted that during the anthrax crisis the New York City public health lab recruited volunteers from the city’s private clinical labs to reinforce beleaguered city lab workers. This arrangement, he said, “was not a stretch,” because clinical and public health lab supervisors both sit on a New York City lab advisory group. That is, the time-consuming work of building relationships had already been done.

Several ongoing initiatives highlighted at the meeting will give public health labs even greater flexibility to deal with future health emergencies:

- The **Public Health Information Network** (PHIN) defines standards for the coding and secure transmission of health-relevant data across a plethora of data streams that now function in isolation. The goal is for all in-house state laboratory information management systems to conform to PHIN standards, facilitating data exchange among labs and among public health data reporting systems.

- The **National Center for Public Health Laboratory Leadership** made its debut appearance at the APHL meeting. The center aims to address a worrisome shortage of skilled public health laboratory directors by preparing current and emerging leaders with the technical and managerial skills to strengthen the nation’s public health lab system.

- The **National Laboratory System** (NLS) is now just a concept being piloted in five states. If fully realized, the NLS will consist of a linked network of public and private laboratories that collaborate for the common good. (For example, when a hospital lab technician spots a suspicious specimen, she will know whom within the state public health lab to send it to for specialized testing.)

- **Federal bioterrorism grants** are enabling states to acquire new equipment and staff to better prepare for terror attacks.

Meeting speakers touched on a range of topics that preview the public health lab of the future—real-time electronic surveillance systems to monitor outbreaks, emerging lab technologies, biomonitoring. While all of these will contribute to emergency preparedness, APHL Executive Director Scott Becker noted, “None of this can happen in a vacuum. First, governments must make a commitment to fund the basics—staff, facilities, and equipment. If we take care of the details, the big picture will take care of itself.”
• Received update from Ernie Shoenfeld, Director of the National Center for Public Health Laboratory Leadership
• Presented service appreciation awards to Jane Getchell, Kati Kelley, Ann Willey and Lou Turner
• Awarded Dayton Miller and PHPO/DLS Presidential awards for meritorious service to the association
• Welcomed new president Norman Crouch to office.

If you have questions regarding recent board activities, please contact Shawna Webster at swebster@aphl.org or 202.822.5227 ext. 225.
VA Opens World-Class Laboratory To Take on 21st Century Threats

On June 9 the nation’s public health lab system got a big boost with the opening of what has been called the most advanced state laboratory in the United States. Dubbed “Biotech Six,” the new home of the Virginia Division of Consolidated Laboratory Services (DCLS) is equipped with the high-tech instrumentation and the safety and security features necessary to handle such infectious organisms as SARS and tuberculosis, as well as potentially toxic or radioactive samples.

A “First Line of Defense” for State and Nation

During a morning dedication ceremony, Virginia Governor Mark Warner called the lab a “first line of defense” against new terrorist threats as well as the traditional scourges of public health. The $63 million facility, he said, is an important addition to the state and federal laboratory network and “should be emulated.”

Later in the ceremony, which was attended by most state public health lab directors (in town for the APHL annual meeting), APHL President Norman Crouch presented Pearson with a plaque from the association, and, speaking on behalf of his colleagues said, “We look upon this event as a shining star.”

Pearson calls DCLS the “most diverse public lab in the United States.” In fact, it was the nation’s first consolidated state lab and performs over three million tests each year for 26 different Virginia agencies, as well as surge capacity testing for other states, including West Virginia, Pennsylvania, Maryland, Delaware, North Carolina and the District of Columbia. In addition to human specimens, the DCLS tests mosquitoes, pesticides, fish, birds, animal brain tissue (for rabies and arbovirus), air, soil, water, commercial foodstuffs, fertilizers, industrial and weapons-grade chemicals, gasoline and diesel fuel, lottery tickets (for production and security assessment), and consumer commodities (including everything from floor wax to condoms). It has been designated as one of eight PulseNet Area Laboratories and uses a DNA “fingerprinting” method on infectious agents to monitor food safety and investigate foodborne disease outbreaks in collaboration with the CDC and other federal partners.

In the clinical realm, the DCLS is able to test human specimens for a wide range of infectious diseases, genetic abnormalities, and toxic substances. It is the only state laboratory in the country using a novel typing technique to characterize strains of tuberculosis. Thanks to the addition of tandem mass spectrometry equipment, next year the lab will be able to test newborns for a treatable enzyme deficiency—medium chain acetyl dehydrogenase or MCAD—
that researchers believe may be responsible for some cases of sudden infant death syndrome.

Centralized Services Contain Costs, Speed Investigations
Pearson, a big proponent of the Virginia model, said consolidating state laboratory services into one facility, “saves a lot of money, time and effort.” He estimated that if each Virginia agency had its own laboratory the commonwealth would need to hire at least half again as many laboratorians as are currently on staff. Additional costs would also be incurred for duplicate equipment, service contracts and lab administration.

On the other hand, because services are centralized, DCLS serves as the data repository for almost all state functions, thereby increasing efficiency and cost-effectiveness. Results of air tests, for example, can be used by both the health agency (as the basis for public health alerts) and by the Department of Environmental Quality (DEQ). During foodborne outbreaks, the results of food and clinical analyses can be compared to ascertain whether the suspected disease organism is present in each.

Pearson recalled an incident that occurred about two years ago in which DCLS was able to determine that three separate state investigations were actually linked. At the time, the state health agency was trying to determine the cause of taste and odor problems with residential well water; the DEQ was investigating a sudden fish and shellfish die-off in a local tributary; and the Department of Agriculture was concerned about an unidentified ailment affecting tomato plants.

DCLS found that the culprit in all cases was identical: the pesticide Tordon. As soon came to light, a commercial pesticide applicator had used well water to dilute Tordon prior to application. During mixing, some of the pesticide had back-siphoned into the well, contaminating the ground water, which in turn was used for irrigation and also seeped into the waterway. Pearson said that because only one lab was involved in all three inquiries, “fewer samples were run and the answer came more quickly.”

Staff Shortage, Budget Cuts Still a Challenge
While Pearson is obviously pleased with the posh, new facilities, he is quick to point out that DCLS has not been immune from a nationwide shortage of skilled laboratorians that continues to be exacerbated by non-competitive state salaries. Despite the superior work environment, he said, DCLS has difficulty recruiting experienced, highly trained laboratorians and, more importantly, retaining entry-level staff. “We’re a great training ground, but people leave for more money,” he said, noting that opportunities abound both within Richmond’s research park and in the nearby Washington, DC area.

But even with a staffing shortage, Virginia’s budget woes and cutbacks in federal grant support have forced Pearson to keep a few salaried positions vacant so he can use the dollars for lab supplies. “There are just not enough general funds,” he said.

Designed for Flexibility, Security, Safety, Light
The new 195,000 square-foot structure sits in a biotechnology research park shared by the state forensics laboratory, the state medical examiner’s officer, and 45 biosciences companies and research institutes. It was designed with four criteria in mind: flexibility, security, safety and maximum exposure to natural light. Features include the ability to network all lab computers, secure storage for chain-of-custody samples, 2,000-gallon neutralization tanks for liquid lab waste, rigorous temperature control, and segregation of sample prep and instrument rooms.

Utilities are delivered through ceiling-mounted carousels, eliminating the need to store gas canisters in laboratory workrooms. Whenever possible, lab

VA Lab, continued on page 18...
equipment is mounted on moveable tables, freeing workspace. A special suite in the sample receiving area—which takes in over 3,000 samples each day—is dedicated for analysis of substances of unknown origin before they are routed for further workup.

Tiffini Lovelace, an architectural planning consultant who worked on the project, said Biotech Six “was all designed around safety.” She noted that consolidating several small labs into one big, open space creates an environment with more people nearby to assist in the event of an accident. Moreover, the spacious workrooms are surrounded by fire-rated glass, allowing passers-by to see “if someone is down” and to easily assess the situation before entering a room. Lovelace said this type of consolidation—which is standard practice in clinical labs—also allows greater functionality within workrooms and the use of fewer instruments because people are able to share.

Lab workers perhaps, are most appreciative of such friendly touches as wheeled lab benches, large windows along most workroom walls, and upgraded computer systems that eliminate the need for duplicate data entry. The sample receiving area has its own dedicated elevator, located in a central area of the building for quick and easy distribution of samples throughout Biotech Six.

With such state-of-the-art facilities, Pearson hopes that the various laboratory sciences “can be integrated seamlessly as they evolve.” But “it’s hard to see 20 to 30 years into the future,” he said. In the meantime, Bob Potts, who tests Chesapeake Bay water and other non-metal inorganics, said he and his colleagues are “...loving this new building.”

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**Member News**

J. Mehsen Joseph, PhD
September 30, 1928—June 11, 2003

On June 11, APHL and the public health community lost a valued mentor in Dr. J. Mehsen Joseph. Joseph died in Baltimore, MD, after developing a post-operative infection.

Joseph held leadership positions at the public health laboratory in Maryland for 46 years; for the past 27 years, he served as Director of Laboratories Administration, earning the respect, friendship and gratitude of countless public health professionals. Joseph revolutionized laboratory science in Maryland by establishing forward-thinking laboratory practices, encouraging staff development and training, and providing a steady example of dedication to public health.

In 1967, due to Joseph’s involvement, Maryland became the first of only two laboratories in the country to screen for PKU, the first hereditary disorder to be screened in newborns. From 1967 through 1974, Joseph was one of the chief advocates for the construction of the current central Maryland public health laboratory in Baltimore, which has since been named for him. In the 1980’s, Joseph was part of a small group of state public health laboratory directors who developed and implemented the current national testing protocols and quality controls covering HIV testing.

For many years as an Associate Professor of Microbiology and Virology at the University of Maryland at Baltimore, Joseph managed to teach the night school’s microbiology curriculum that included courses in general and pathogenic microbiology,
virology, mycology and immunology. Under his direction and encouragement, many of Maryland's laboratory professionals earned advanced degrees that would not have been available without his expertise.

Joseph was a member of over a dozen professional organizations, including APHL, which he served as president for two years, and the American Society for Microbiology, which he served as Secretary for ten years. Always a scientist and researcher, Joseph authored more than 80 peer-reviewed publications. Joseph received APHL's Lifetime Achievement Award in 2002.

The generous nature of Joseph’s career is impossible to record fully, but a story from 1960 captures the heart and the man behind the science. In 1960, in the midst of a blizzard and Baltimore's last outbreak of paralytic poliomyelitis, Joseph walked the eight miles from his home to the state laboratory to read and report the results of tissue cultures involved in the diagnosis of polio cases.

APHL emeritus member Dave Verma eulogized Joseph at a memorial service in Baltimore, emphasizing the balance he achieved in professional and family life. Joseph's rich home life included his wife LaRue, nine children, and 22 grandchildren. A man who touched many lives, Dr. J. Mehsen Joseph will be missed by a large number of former students, colleagues and public health laboratorians for whom he served as a teacher and a mentor.

Jennifer Liebreich, MPH has been promoted to Director, Environmental Health Programs. This promotion recognizes excellent service to members and her sound ability to manage multiple programs under the Environmental Health umbrella. Environmental health programs at APHL include newborn screening and food safety, as well as environmental health initiatives such as biomonitoring. Liebreich will continue to work with our preparedness program on areas of mutual interest such as chemical terrorism and food security.

Sarah Lister, DVM, MPH, APHL's director of public health preparedness, left on June 6 for a position as Specialist in Public Health and Epidemiology at the Congressional Research Service. During Lister's tenure at APHL, she led the highly successful chemical terrorism laboratory assessment project, two BT surveys, APHL's initial efforts to bring a policy focus to LRN and its expansion, the completion of the food safety assessment report, and APHL efforts to inform members of regulatory changes associated with new laws, such as the USA Patriot Act and the Select Agent Rule.

Lucy Maryogo-Robinson, APHL's current office assistant, will serve as a coordinator for the global health program, effective July 7. A graduate of Ohio Wesleyan University, Maryogo-Robinson's international experience, organizational ability, and fluency in French and Kiswahili will make her an invaluable addition to the APHL global health program.

Helen Regnery, PhD, retired in June from her position as NEDSS Program Manager. Regnery brought 34 years of experience from the CDC to her work on NEDSS activities. During her three years at APHL, Regnery made a significant impact on the development of public health data standards and electronic laboratory reporting initiatives. She has been instrumental in the development of public health laboratory requirements and their integration into the NEDSS paradigm. APHL wishes her well in all of her future endeavors.

Patina Zarcone, MPH, joined APHL's staff as the information systems manager on June 2. Zarcone was a program coordinator for the Infectious...
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The Association of Public Health Laboratories (APHL) is a national, non-profit dedicated to working with its members to strengthen public health laboratories. By promoting effective programs and public policy, APHL strives to provide public health laboratories with the resources and infrastructure needed to protect the health of U.S. residents and to prevent and control disease globally.

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To submit an article for consideration, contact Emily Mumford via email, emumford@aphl.org.

...Staff News, continued from page 19

Disease Division at the State Laboratory Institute, Massachusetts Department of Public Health. During her two-year tenure, she managed the coordination and communication of over 351 different state agencies and Boards of Health for a grant-funded project, served as a consultant to multiple state agencies on their implementation of MDPH guidelines for newly emerging infectious diseases, directed the assessment, planning and implementation of two different information systems designed to store and analyze confidential laboratory information, supervised a multidisciplinary team of environmental analysts, data analysts, and database administrators, and co-authored and twice taught a course of preventative maintenance and basic laboratory safety in Managua, Nicaragua. In 2002, she received her MPH degree from Boston University School of Public Health.

...PulseNet, continued from page 11

Saving on Agarose

The PulseNet Standardized Protocols strongly recommend the use of BioWhittaker's SeaKem Gold Agarose, an expensive brand. Though the CDC Validation Laboratory continues to test other brands, it has found that patterns are not comparable to those generated with SeaKem Gold and thus are not suitable for PulseNet purposes. To assist network participants, a discount price has been negotiated for orders placed by PulseNet laboratories. Please see the PulseNet web board for ordering information.

Mark Your Calendar!

2004 APHL/ASTHO Joint Annual Meeting

September 28-October 1
St. Paul, Minnesota

2004, 4