

READY, SET, RESPOND:

Chemical Terrorism Preparedness in the Nation's State Public Health Laboratories

Association of Public Health Laboratories

March 2006

This brief summarizes findings from the second annual survey of chemical terrorism capacity at state public health laboratories conducted by APHL in fall 2005. Data demonstrate that laboratory preparedness for chemical terrorism continues to lag behind activities associated with bioterrorism, primarily as a result of a delay in the allocation of federal funds. Findings on facility safety, sample receiving, coordination, all-hazards preparedness and workforce capability are reviewed.

Since the late 1990s, Congress has provided funding to support surveillance and control of infectious biological agents associated with bioterrorism; however, federal funding to develop the most basic chemical terrorism response capabilities in state public health laboratories (SPHLs) has only been available since 2003. While major advances have been made over the past three years, laboratory preparedness for chemical terrorism continues to lag behind those activities associated with bioterrorism, primarily as a result of a delay in the allocation of federal funds.

In fall and winter 2002-2003, with significant support from the Centers of Disease Control and Prevention (CDC), the Association of Public Health Laboratories (APHL) completed the first-ever assessment of public health laboratory readiness for chemical terrorism. The 2003 project involved site visits and a workshop to develop consensus recommendations and was attended by representatives of 50 states, two territories and the District of Columbia.¹ As a result, APHL published *Ready or Not: Findings and Recommendations of the APHL Chemical Terrorism Project* in July 2003.

To obtain more comprehensive baseline data and an improved understanding of progress, improvements and remaining gaps in chemical terrorism state laboratory preparedness, APHL developed a more detailed assessment tool to be disseminated to state public health laboratories on an annual basis. This enhanced tool is referred to as the APHL Chemical Terrorism Laboratory Preparedness Survey and was first launched in November 2004. Data obtained through the assessment was analyzed and published in an issue brief, *CT Scan: Chemical Terrorism Preparedness in the Nation's State Public Health Laboratories: State Public Health Laboratory Chemical Terrorism Capacity* in March 2005. In an ongoing effort to improve understanding of laboratory preparedness issues, and to track progress, improvements and remaining gaps in the field of chemical terrorism laboratory preparedness, APHL conducted the second annual APHL Chemical Terrorism Laboratory Preparedness Survey in November and December of 2005. This brief provides a summary of key survey findings derived through analysis of data submitted by 50 states and the District of Columbia.



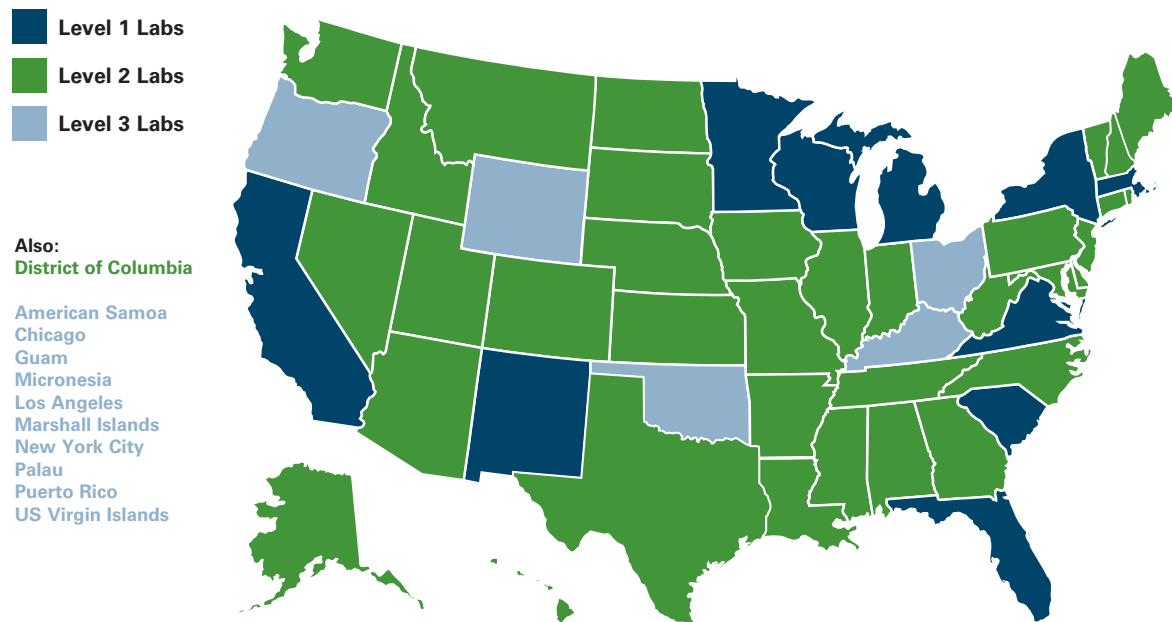
Public Health Laboratory Issues in Brief

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Figure 1 Chemical Laboratory Response Network



Role of State Public Health in the Laboratory Response Network for Chemicals

Public health laboratories comprise the backbone of the Laboratory Response Network (LRN), the nation's chief system for identifying, testing and characterizing potential agents of biological and chemical terrorism. The LRN was created in 1999 to aid laboratories to prepare and respond to acts of bioterrorism. Due to emerging threats of chemical terrorism, today the LRN is charged with increasing laboratory preparedness for handling chemical agents in clinical (blood, urine, saliva) specimens and biological agents in all matrices. APHL, CDC and the Federal Bureau of Investigation (FBI) are the founding partners of the LRN.²

The chemical component of the LRN (chemical LRN) consists of 3 distinct levels of laboratory membership: 62 state, territorial and metropolitan public health laboratories are members. Upon gaining membership to the chemical network, a designation of "Level 1, 2 or 3" is assigned to each participating laboratory.²

All State Public Health Laboratories

All 62 state, territorial and metropolitan public health laboratories in the chemical LRN have Level 3 characterization. Level 3 laboratories have several functions. These include: 1) Working with hospitals in their jurisdiction; 2) Ability to properly collect and ship clinical (blood, urine, saliva) samples; 3) Ensuring that specimens which could constitute forensic evidence are handled properly and that chain-of-custody procedures are followed; 4) Familiarity with chemical agents and associated health effects; 5) Training on anticipated clinical sample flow and shipping regulations; and 6) Developing a coordinated response plan for their respective state and jurisdiction.²

Thirty-Seven State Public Health Laboratories

37 laboratories are characterized as Level 2 laboratories within the chemical LRN. These laboratories are capable of detecting exposure to a limited number of toxic chemical agents in human blood or urine such as analysis of cyanide and toxic metals in human samples.²

Ten State Public Health Laboratories

Ten laboratories in the nation are characterized as Level 1

laboratories within the chemical LRN. These ten laboratories are capable of detecting an expanded number of chemical agents in human blood or urine, including all Level 2 laboratory analyses plus analysis for mustard agents, nerve agents and other toxic chemicals. The ten Level 1 laboratories in the United States are California, Michigan, New Mexico, New York, Virginia, Florida, Massachusetts, Minnesota, South Carolina and Wisconsin.³ These Level 1 laboratories provide the CDC with much-needed surge capacity for handling samples in a chemical event.² **See Figure 1.**

Methods

In November and December of 2005, APHL conducted a survey of active members: the 50 states, the District of Columbia (DC), and Puerto Rico. **Fifty-one responses were received, representing all states and DC.** Unless otherwise noted, 51 responses were given to each question. **For the purposes of this report, the term "states" or "state public health laboratories" (SPHLs) will be used to refer to all respondents, including DC. Additionally, the term "chemical terrorism" refers not only to weaponized chemical agents, but also chemicals classified as toxic industrial chemicals and toxic industrial materials.**

States were asked to report on capability and capacity for chemical terrorism in Fiscal Year 2004 (FY04), encompassing September 1, 2004 through August 30, 2005. The assessment was conducted using LabNet, APHL's Web-based data repository and assessment tool. Descriptive statistics were prepared for all variables. Results are reported for the following categories:

- Funding
- Facility/Worker Safety
- Coordination/Response Plans
- Instrumentation
- Sample Receiving/Processing/Preparation
- Workforce
- Coordination/Response Plans
- All-Hazards Laboratory Preparedness
- Radiological Testing Capability

Funding

SPHLs receive funding to support chemical terrorism activities through the CDC Cooperative Agreement on Public Health Preparedness and Response for Bioterrorism.³ At the origination of the Cooperative Agreement in FY99, states were not directed to use any of the available bioterrorism preparedness funds for chemical terrorism. However, in FY03 the Cooperative Agreement was revised to allow states to apply a portion of the funds budgeted for preparedness activities to support "Focus Area D" activities to foster the development of laboratory chemical testing capabilities. **In FY04, on average, 49 states and the District of Columbia reported receiving \$892,600 (Ranging from \$92,000 to \$3,935,000) from Focus Area D of the CDC Cooperative Agreement.**

Funds provided through the CDC Cooperative Agreement are used by states to support several activities and purposes including salary and fringe benefits, renovations and purchase of equipment and supplies. **Figure 2** illustrates the categorization of these expenditures as reported by states in this year's assessment.

Aside from the CDC Cooperative Agreement, **only 9 states (21%) reported receiving additional federal funds.** These funds were most often provided by the Department of Homeland Security (DHS) and/or the Department of Justice.

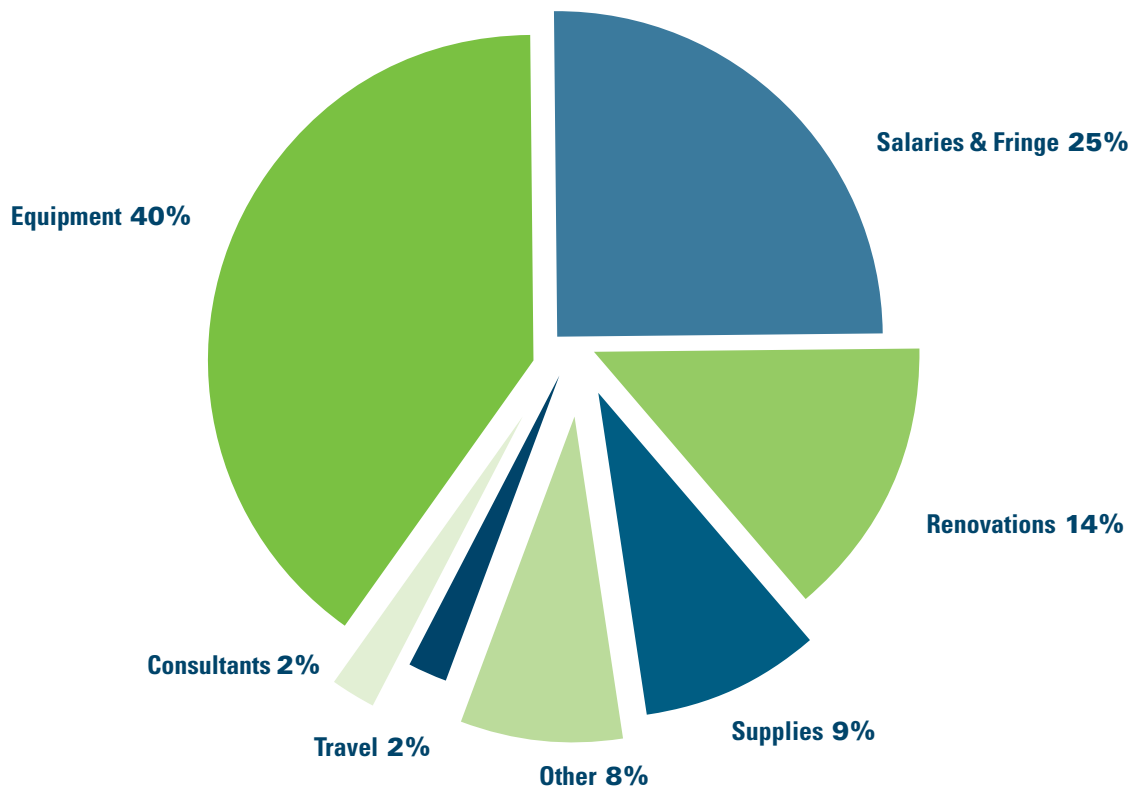
Despite the understood priority of chemical terrorism laboratory preparedness, state spending remains largely absent. **17% received state general funding for chemical terrorism preparedness equipment and supplies in FY04.**

In the absence of continued allocation of federal preparedness funds, the potential for advancement and longevity of chemical terrorism preparedness in SPHLs will be jeopardized.

Facility and Worker Safety

The FY04 assessment data demonstrated a marked

Figure 2 Allocation of FY04 CDC Cooperative Agreement Funding in State Public Health Laboratories



increase in improvements and enhancements to facility security measures available in SPHL chemical terrorism testing facilities:

36 states (69%) have card swipe access with electronic tracking of entries into the chemical terrorism testing facility.

43 states (83%) have key locks securing the chemical terrorism testing facility, up from 46% in 2004.⁴

29 states (56%) have security personnel on staff, up from 37% in FY03.⁴

30 states (58%) have video surveillance systems, up from 35% in FY03.⁴

38 states (73%) require keypunch or swipe access to gain entrance into the chemical terrorism testing facility, up from 27% in FY03.⁴

In addition to expanding the number of facilities with the security elements mentioned above, measures such as motion and switch detectors, reported as a need by 17% of respondents and intrusion alarm systems,

reported as a need by 23% of respondents are often still lacking.

Laboratory engineering controls are intended to minimize employee exposure to chemical and physical hazards in the workplace. States reported the following engineering controls in place for accepting and analyzing unknown or potential chemical terrorism agents:

27 states (51%) address chemical terrorism worker safety issues including handling unknown and multi-hazard specimens in their standard operating procedures for chemical terrorism testing.

32 states (62%) have a temporary storage facility for chemical waste disposal located on-site.

43 states (83%) possess a BSL-2 facility, and 29 states (56%) have a BSL-3 facility in the laboratory. Such facilities allow laboratory personnel to work with agents capable of causing moderate to very serious potential hazards to personnel and to the environment.

Despite significant advancement in facility and worker safety practices, **SPHLs continue to lack many of the critical components required to ensure continuity of operations** for their chemical terrorism testing facility.

A mere **18 states (35%)** reported having a back-up specimen receiving/mail area in place to deal with the surge of samples that would be evident in a chemical terrorism event or widespread chemical contamination.

Just **14 states (27%)** reported availability of redundant laboratory space for chemical terrorism testing.

Only **3 states (6%)** reported having back-up air handling systems in place, and just **12 states (23%)** have redundant fan systems.

In order for a sample to be analyzed and identified, it needs to be handled by laboratory staff. The **safety and protection of these state personnel** is of utmost consequence in any emergency situation. The FY04 data illustrated continued improvement with relation to personal protective equipment (PPE):

44 states (85%) have a chemical fume hood installed in their laboratory to minimize worker exposure to hazardous chemicals.

45 states (87%) provide face shields for transporting samples away from a biological safety cabinet.

27 states (52%) possess Powered Air-Purifying Respirators (PAPRs).

While most states have access to the most basic PPE such as safety glasses and impervious lab coats, many states continue to be deficient in terms of other safety gear. For instance:

24 states (46%) own a glove-box to prevent both the laboratory itself, as well as laboratory personnel from exposure to/contamination from hazardous materials.

Just **11 states (33%)** possess a Level C-Respirator for laboratory personnel.

9 states (17%) report having a Level A and B Self Contained Breathing Apparatus (SCBA) and radiation shields.

Equipment and Supplies

In order for a SPHL to be prepared to respond to a chemical terrorism event, the laboratory must acquire equipment and train personnel to operate necessary instrumentation. Depending upon the designation of the laboratory (Level 1, 2, or 3), LRN instrumentation requirements differ. Without proper instrumentation, it is impossible for SPHLs to test clinical samples for the presence of chemical terrorism agents or their metabolites. While most states have basic chromatography and mass spectrometry, few have instruments for testing chemical warfare substances such as nerve agents and nitrogen mustard agents in human *clinical* samples. For example, the survey assessment showed that:

19 states (37%) have LC/MS/MS equipment for use in the analysis of nitrogen mustards in clinical samples.

7 states (14%) possess GC/MS/MS equipment for use in the analysis of nerve agents in clinical samples.

4 states (8%) have distillation and spectrophotometer equipment for use in the analysis of cyanide in clinical samples.

Typically laboratory instrumentation used for analysis of chemical terrorism agents in clinical specimens must remain devoted to that function. Therefore it cannot be used for other purposes, such as environmental testing, due to the possibility of contaminating instrumentation and the inability to turn an instrument around in enough time to run clinical samples in an emergency. Some instrumentation can take an entire day to be converted. This is one among many problems affecting the ability of states to analyze environmental samples for the presence of chemical terrorism agents, a subject addressed later in this brief. With respect to instrumentation used for chemical terrorism testing in *environmental* samples:

4 states (8%) possess GC/MS with liquid injection for analysis of nerve agents in environmental samples.

1 state (2%) has LC/MS/MS equipment for analysis of nitrogen mustards in environmental samples.

1 state (2%) possesses GC/MS/MS equipment for analysis of nerve agents in environmental samples.

Acquisition of equipment is merely one aspect of achieving chemical terrorism preparedness in the laboratory. Aside from the exorbitant costs associated with purchasing specialized instrumentation, hidden costs include expert training required to operate the instrument and constant maintenance and repair which can exceed thousands of additional dollars per year. Moreover, in order to perform analyses on chemical terrorism agents, laboratories must have access to a steady supply of chemical reagents.

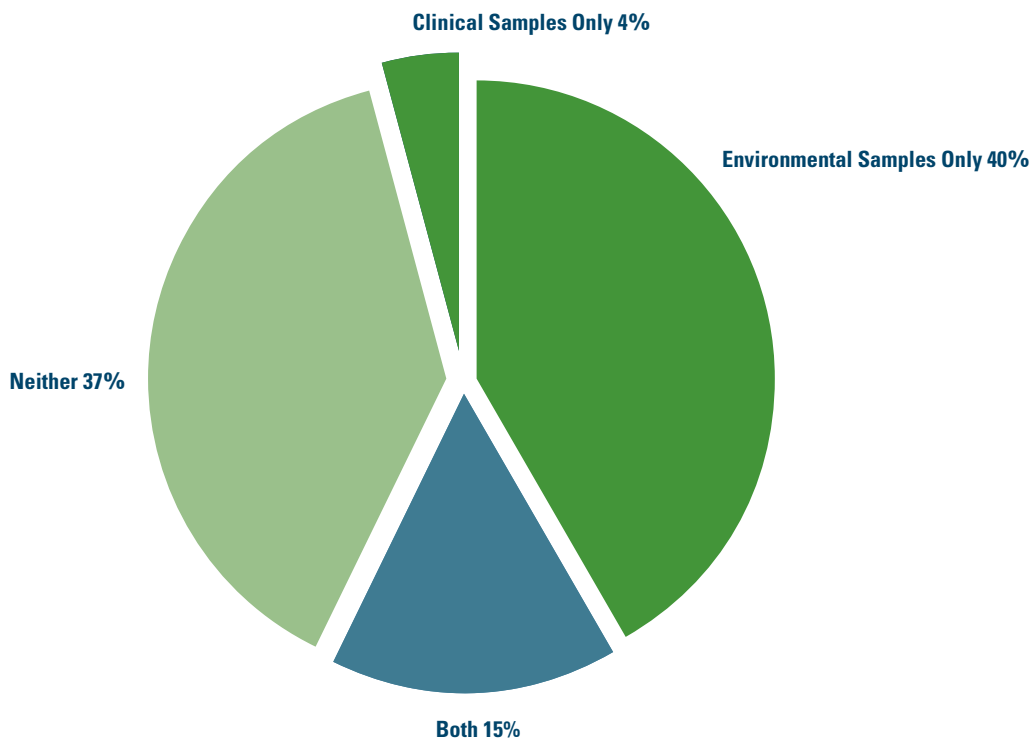
Sample Receiving/Processing/Preparation

Since 1999, the CDC's National Center for Environmental Health has been transferring methods, materials and equipment for analysis of chemical terrorism agents

in clinical samples to the Level 1 laboratories and is currently transferring this technology to Level 2 laboratories. This transfer of clinical methods is intended to establish geographic coverage in a terrorist event.

In contrast, *limited* federal support has been provided to states *or* federal agencies to develop methods, safe handling protocols, containment facilities or to purchase equipment for the analysis of *environmental* samples for chemical terrorism agents. The lack of environmental testing standards and protocols is problematic for a number of reasons: 1) It compromises state ability to safely accept and perform accurate analyses and identification of environmental samples; 2) It impedes the ability of officials to make informed public health/safety decisions regarding evacuations, reoccupations and decontamination; and 3) Instrumentation intended for use with clinical samples generally must remain dedicated to that purpose and cannot be used for environmental testing,

Figure 3 Collaboration with Other State Laboratories for Chemical Terrorism Testing



either concurrently or intermittently, without potentially compromising readiness for clinical testing.⁵

The assessment confirmed that in FY04, **38 states (73%)** received environmental samples and **35 of those states (67%)** performed analysis on environmental samples. The most popular environmental media received by states for testing include drinking/ground/surface waters (**67%, 52% and 50%, respectively**), soil/sediment (**52%**), and to a lesser degree, surface wipes (**46%**), vegetation (**37%**), dust (**33%**) and air (**25%**). Additional environmental samples being received by states for chemical terrorism testing include **unknown powders (received by 37% of states)**, **threat letters (received by 27% of states)** and **unknown/suspicious packages (received by 19% of states)**.

While the majority of states perform chemical testing for **metals (65%)**, **pesticides (52%)**, **organic chemicals (60%)** and **polychlorinated biphenyls (PCBs) (54%)** using validated methods and traditional environmental tests, **far fewer reported capability to test for chemical warfare agents such as vesicants (2%), choking agents (4%), blood agents (25%), incapacitating agents (2%) and nerve agents (0%). Testing (beyond basic screening and rule-out testing) for these agents is being conducted in the absence of appropriate funding, methods and certification standards, validated test protocols, and suitable facility/worker safety procedures.** In order to perform analyses on these environmental samples, states reported using modified CDC methods intended for clinical sample analyses, and methods from academia and industry, the Association of Official Analytical Chemists (AOAC), the American Society for Testing and Materials (ASTM), and Environmental Protection Agency methods traditionally used for analysis of toxic industrial chemicals/materials.⁵

It is important to note that while in some states the SPHL also houses the state environmental laboratory, in other states the state environmental laboratory exists as a separate entity. Many SPHLs work in collaboration with their state environmental laboratories in analyzing environmental samples suspected of containing a

chemical terrorism agent. Additionally, SPHLs may coordinate with other state government laboratories (ie, Department of Agriculture, etc.) to perform analyses on both clinical and environmental samples. **See Figure 3.**

Workforce

Workforce Barriers

An ongoing public health workforce crisis is the result of sparse availability of trained laboratory staff, even for routine SPHL operations. Supplemental funding has boosted laboratory preparedness for chemical terrorism, permitting most laboratories to create new positions for chemical terrorism coordinators. However, laboratory workforce shortages continue to pose a threat to preparedness activities. Preparing and operating a laboratory to respond to any chemical event, terrorist or other, requires a highly-experienced workforce. There are several factors that impede the laboratories' ability to acquire much-needed personnel.

According to the 2005 assessment, difficulties related to recruitment, retention and hiring can be attributed to several factors which can be seen below in **Figure 5.**

Despite the evident barriers, some positive trends continue, as **43 states (83%)** report successfully filling their chemical terrorism coordinator position. Additionally, on average, states reported having **20 full-time chemists** on staff at their SPHL.

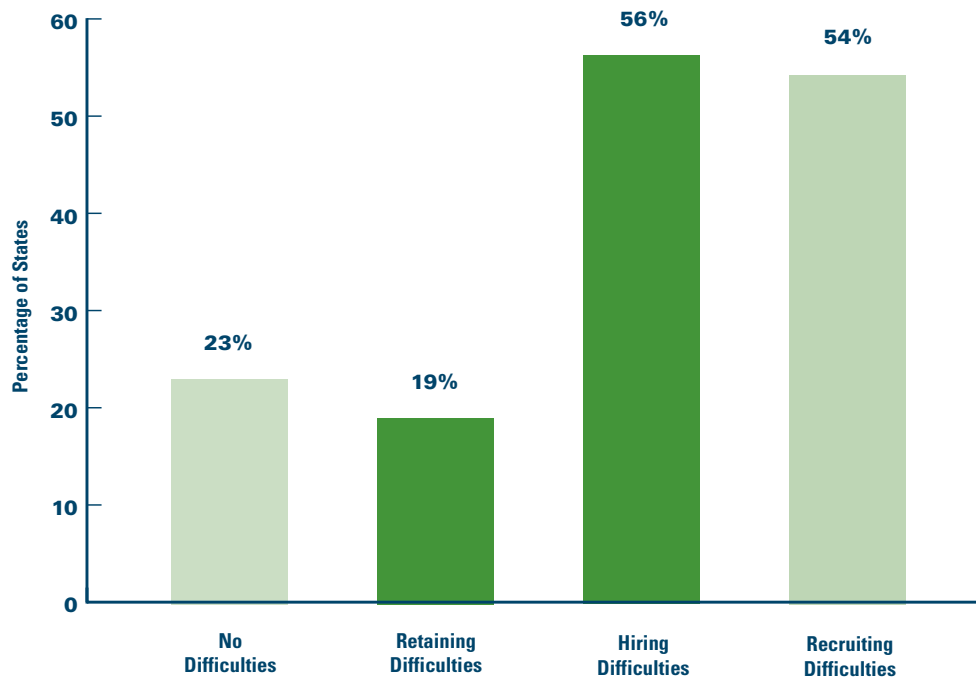
The 2005 assessment illustrates the varying academic experience among the current chemical terrorism laboratory workforce. On average, each SPHL has **1 Doctoral level, 1 Masters level and 3 Bachelors level scientists** dedicated to chemical terrorism testing.

Laboratory Personnel-Clinical Testing for Chemical Terrorism

For conducting analyses on human clinical samples for the detection of chemical terrorism agents, on average states reported the following in terms of staff capability:

5 staff members per laboratory are trained to

Figure 4 State Hiring & Retention Difficulties Experienced



perform chemical terrorism testing on clinical samples.

3 staff members per laboratory are both full-time employees and dedicated to performing chemical terrorism testing on clinical samples.

2 staff members per laboratory are both full-time employees and cross-trained to perform chemical terrorism testing on clinical samples.

Laboratory Personnel-Environmental Testing for Chemical Terrorism

While states have several members of their laboratory workforce trained to perform tests for traditional chemical agents in environmental samples (ie, PCBs, pesticides, VOCs), analysis of chemical warfare agents such as vesicants, choking agents, blood agents and incapacitating agents in environmental samples represent previously unmarked territory for states. Despite the fact that standardized environmental sampling protocols and test methods are unavailable, several states are still accepting, and, to a lesser degree,

analyzing environmental samples for chemical warfare agents. **No federal agencies currently provide training to states for environmental testing of chemical warfare agents.** Therefore, any minimal training for the environmental testing of chemical warfare agents is being received through industry/vendors, in-house training and academia, among others.⁵ In terms of training for conducting analyses on environmental samples for the detection of chemical terrorism agents, on average states reported the following:

4 staff members per laboratory are trained to perform chemical terrorism testing on environmental samples.

4 staff members per laboratory are both full-time employees and dedicated to performing chemical terrorism testing on environmental samples.

3 staff members per laboratory are both full-time employees and cross-trained to perform chemical terrorism testing on environmental samples.

Coordination and Response Planning

Relationships with local first responders such as members of HazMat teams, local, state and federal law enforcement, and the Army National Guard Weapons of Mass Destruction-Civil Support Teams (WMD-CST) are increasingly important in order to establish coordinated SPHL support for both identifying and responding to chemical terrorism events. APHL's 2005 assessment demonstrated continued progress made in forming relationships between SPHLs and local WMD-CSTs:

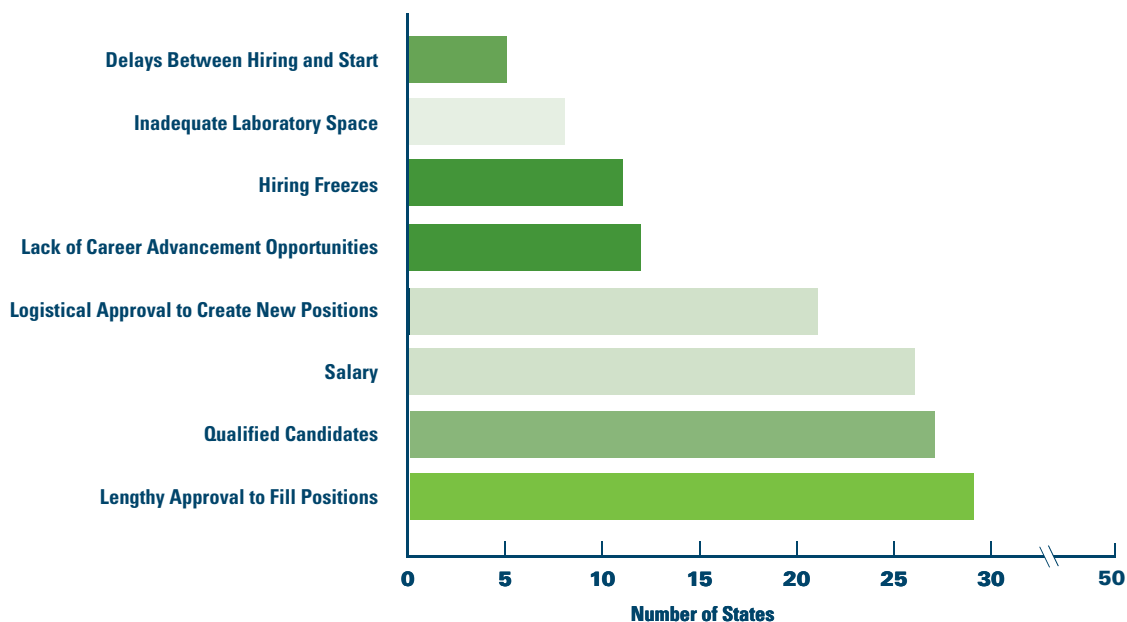
35 states (67%) provide advice on sample collection and shipping to their WMD-CST.

33 states (63%) (an increase from 29 states in FY03) collaborate with their WMD-CST in exercises and drills.⁴

32 states (62%) provide other consultation to their WMD-CST.

Other activities involving local WMD-CSTs included use of sample test kits, proficiency testing activities and information sharing. Some states await the establishment of a local WMD-CST in their state/jurisdiction, while others have just recently implemented units in their states. Increased collaboration with WMD-CST marks a positive step for SPHLs in chemical terrorism preparedness. However, additional enhancements are still needed to build collaborative relationships with other partners. Forging relationships with poison control centers, emergency medical personnel, epidemiologists, medical toxicologists, food regulatory laboratories, schools of public health and others will serve to convey the important role that laboratories play in executing a coordinated response to chemical terrorism events.

Figure 5 Barriers to State Hiring Process



Despite its critical importance, **16 states (31%) reported they do not have a written response plan in place to handle a chemical terrorism attack or widespread chemical contamination. Fourteen additional states (27%) indicate having only an informal response plan in place. See Figure 6.** While an improvement from FY04 data, when 32 states reported lacking a written response plan, the development of a response plan in every SPHL remains a critical need. Without a good plan, it becomes impossible to orchestrate a coordinated response in an emergency situation. The development of formal response plans to deal with a chemical terrorism event is a fundamental component of emergency response and preparedness within the SPHL setting. Response plans help health departments/SPHLs to integrate their chemical terrorism response efforts into the overall emergency response and preparedness framework established by the state. A chemical terrorism response plan serves to aid SPHLs in the process of building communication links with other assets in the public health community such as local hospitals, emergency departments and first responders. Through improving relationships with other public health stakeholders, the SPHL can

better assess local capacities and develop a coordinated response to a chemical terrorism event.⁶

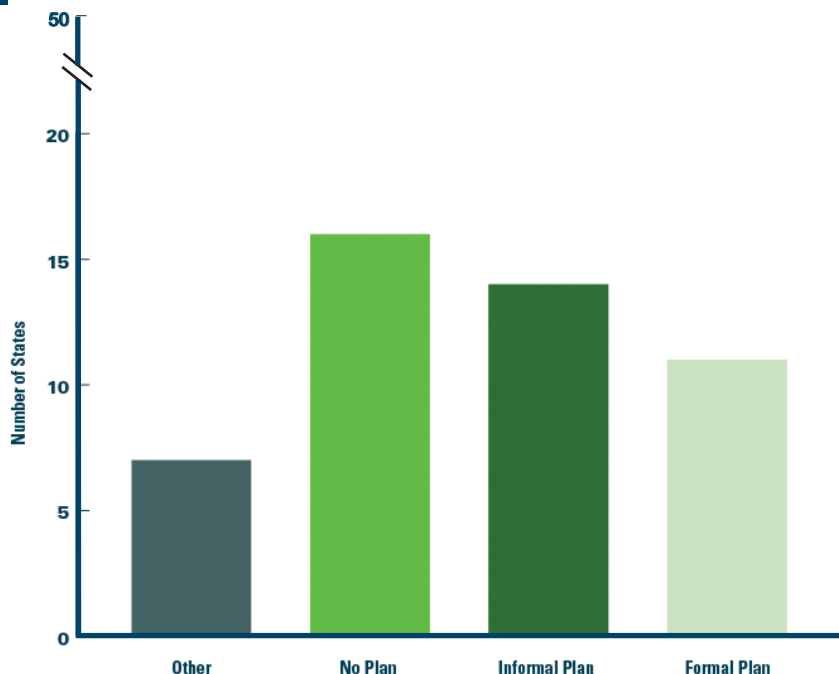
All-Hazards Laboratory Preparedness

To enhance this year's assessment and move towards the more desirable "all-hazards" approach to preparedness, the assessment tool included several new questions related to all-hazards capabilities within the laboratory. The concept of all-hazards preparedness focuses on readiness and capability for early detection and rapid response to biological or chemical events, infectious disease outbreaks, hazardous materials spills and natural disasters.

Security Clearance in the Laboratory

Through obtaining a security clearance, designated SPHL staff members are ensured access to sensitive information regarding the nature of health threats as well as to intelligence information. At present, just **22 states (42%) reported that their laboratory possesses a security clearance**, with the majority being "secret" level clearances granted to either the SPHL director, bioterrorism, and/or chemical terrorism coordinator. States reported that most clearances granted to SPHL staff were sponsored by either FBI or DHS.

Figure 6 Status of Response Plans for Chemical Terrorism in State Public Health Laboratories



New Technology

Over the past couple of years, Fourier Transform Infrared Spectroscopy (FTIR) has become a popular analytical technique utilized by SPHLs to identify organic and, in some cases, inorganic materials. FTIR measures the absorption of various infrared light wavelengths generated by the material of interest. By analyzing the varying wavelengths, scientists are able to identify specific molecular components and structures. The technology is extremely valuable in unknown sample screening and triage. **Thirty-seven states (71%) have purchased an FTIR instrument to be used for sample triage.**

Multi-Hazard Testing Capability

A laboratory may receive an unknown sample that contains multiple hazards, for example, a biological and chemical agent or a chemical agent and an explosive material. A laboratory's all-hazards capability is largely dependent on its ability to accept and/or test unknown or mixed samples:

39 states (75%) reported capability for samples that may contain biological agents.

34 states (65%) reported capability for samples that may contain chemical agents.

20 states (38%) reported capability for samples that may contain radiological agents.

2 states (4%) reported capability for samples that may contain explosives.

No states reported capability for samples that may contain incendiary devices (ie, a bomb designed to start a fire).

Although the above statistics demonstrate that many SPHLs are capable of accepting and analyzing multi-hazard samples of various compositions, it is important to note that this testing may often occur under inadequate worker safety conditions. **Twenty-three states (54%) reported that their BSL-3 laboratory is not configured to work with multi-hazard samples,** meaning that analysis of these samples is often being conducted at the risk of contaminating the laboratory facility, or worse yet, exposing the individual handling the sample.

Radiological Testing Capabilities

Only a handful of SPHLs are equipped and have experience with analyzing clinical and environmental samples for radiochemicals and radiological contaminants. Most existing state laboratory capability is limited in scope, and attributable to emergency response planning and exercises associated with nuclear power plants in or near their respective states. Additionally, states performing extensive drinking water analyses are also familiar with testing, monitoring and classification of radiologicals in an event. Due to the size of most state laboratories, radiochemistry sections tend to be small, with usually two or three personnel and just one or two instruments, and capable of accommodating only limited environmental testing capability in an emergency. In the event of a large radiation exposure, monitoring the population and investigating or confirming radiation sickness or chromosomal mutations would be challenges that most SPHLs are still incapable of addressing (Marinea Mehrhoff BS, MT(ASCP), personal communication, February 3, 2006).

It is often stated that all incidents are local events. The responsibility for external monitoring, internal monitoring, bioassays, biodosimetry and other long-term monitoring are state/local responsibilities, especially within the first 24 to 48 hours of an event. **Most states possess the most basic screening and testing instruments for detecting radiological contaminants in samples, such as Geiger counters and liquid scintillation counters, which 81% and 56% of states reported having in the laboratory, respectively.** However, in terms of the more sophisticated screening and testing technologies, states are largely deficient:

2 states (4%) have radon counters or alpha spectrometers to be used for screening purposes.

2 states (4%) possess accession area radiological monitors for testing.

No states possess area monitors or Primalert technology for radiological testing.

No states have whole body counters to use for screening purposes.

Conclusions

With continued funding from the CDC Cooperative Agreement on Public Health Preparedness and Response for Bioterrorism, state laboratories maintain diligent efforts to increase capacity for preparing for and responding to a chemical terrorism event or widespread chemical emergency. While efforts on behalf of SPHLs have translated into an enhanced public health infrastructure, significant gaps remain, posing obstacles to the nation's overall level of preparedness.

Inadequate funding, environmental and radiological testing gaps and laboratory workforce shortages identified in this assessment provide a snapshot of the disparities that exist in present day chemical terrorism laboratory preparedness in the states. Nationwide emergency preparedness needs cannot be met by focusing solely on bioterrorism preparedness activities. In maintaining and improving laboratory preparedness for a chemical terrorism event, resources, personnel and knowledge become ready tools that can be applied to all-hazards situations—chemical, biological, radiological—as well as natural disasters, such as the devastating Hurricane Katrina in Fall 2005.

In a chemical event, the nation must have a response protocol to determine the chemical agent(s) used, identify the exposed population, and measure their level of exposure, while protecting the safety of state laboratory personnel. Laboratories provide critical information for assuring the appropriate public health response to an act of terrorism involving a chemical agent, a response that must be quick and definitive to effectively respond to health needs and to maintain public confidence. APHL strongly encourages the continued support and promotion of sustained funding for all preparedness activities in SPHLs, including those related to chemical terrorism. Attaining and sustaining adequate nationwide emergency public health readiness and response is not achievable without a continued federal commitment to invest resources in SPHLs.

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Notes

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