2018 APHL ALL-HAZARDS LABORATORY PREPAREDNESS SURVEY

Summary Data Report

February 2019

APHL ASSOCIATION OF PUBLIC HEALTH LABORATORIES®

ABOUT THE ALL-HAZARDS LABORATORY PREPAREDNESS SURVEY

APHL fielded the eleventh Annual All-Hazards Laboratory Preparedness Survey to assess state public health laboratories' capability and capacity to respond to biological, chemical, radiological and other threats, such as pandemic influenza. Administered in the fall of 2018, the survey covered a 12-month period from July 1, 2017 to June 30, 2018 representing the US Centers for Disease Control and Prevention (CDC) Public Health Emergency Preparedness (PHEP) Cooperative Agreement Fiscal Year 2017, also known as Budget Period 1. APHL received a 98% (53/54 public health laboratories) response rate from public health laboratories in 50 states, Puerto Rico, the District of Columbia, Los Angeles and New York City.

This white paper provides aggregate responses for all questions. Additionally, APHL will summarize key points in issue briefs that will be distributed at various meetings and conferences. Both the white paper and issue briefs serve as educational tools that can assist in educating policy makers, public health partners and the public on the important role laboratories play in public health preparedness and response. Electronic copies of both documents are available at www.aphl.org.

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CONTACT

For questions on the data or APHL survey methodologies, please contact Lorelei Kurimski, MS, director, Institutional Research at 240.485.2703 or lorelei.kurimski@aphl.org.

For questions pertaining to APHL's preparedness and response activities, please contact Samuel Abrams, MPH, specialist, Public Health Preparedness and Response at 240.485.2731 or samuel.abrams@aphl.org.

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SECTION 1: DEMOGRAPHICS

Please review and update the following information for your laboratory's contacts.
Individual laboratory contact information can be found in the data file.

BT Coordinator Name:
Phone:
Email:

State Training Coordinator Name:
Phone:
Email:

CT Coordinator Name:
Phone:
Email:

24/7 Contact Information:
Phone:

SECTION 2: FUNDING & WORKFORCE

1. From July 1, 2017 to June 30, 2018, did your PHL experience any funding cuts to preparedness activities?

	Response	%
Yes	20	37.7%
No	33	62.3%

n=53

1a. Please choose the top five impacts of any preparedness funding cuts your PHL experienced from July 1, 2017 to June 30, 2018.

	Response	%
Unable to renew service/maintenance contracts	10	50.0%
Unable to purchase critical equipment (e.g., PCR instrumentation, automated extractors, biosafety cabinets, etc.)	7	35.0%
Unable to expand capabilities for new assays/tests/methods	6	30.0%
Consolidated staff positions	5	25.0%
Unable to purchase reagents and supplies or materials	5	25.0%
Increased staff turnover	5	25.0%
Unable to provide or reduced the number of training courses and outreach activities	5	25.0%
Unable to participate in national meetings/conferences/training courses	5	25.0%
Unable to hire staff due to lack of funds	4	20.0%
Unable to purchase and/or upgrade Laboratory Information Management System (LIMS)	4	20.0%
Reduced 24/7 capability	3	15.0%
Lost full-time position(s)	3	15.0%
Increased sample/specimen turnaround time	2	10.0%
Lost part-time position(s)	2	10.0%
Other – please specify	2	10.0%
Unable to participate in exercises	1	5.0%
Reduced state courier services	1	5.0%
Unable to respond to an event	0	0.0%
Experienced no change in laboratory operations	0	0.0%

n=20. Other specified responses can be found in the data files.

2. From July 1, 2017 to June 30, 2018, how much preparedness funding did your PHL receive? Please enter "0" if none. Total amounts for Biological Preparedness must be same across Questions 2, 3 and 4. Total amounts for Chemical Preparedness must be same across Questions 2, 3 and 4.

	Biological Preparedness Amount	Chemical Preparedness Amount	Radiological Preparedness Amount
CDC PHEP Cooperative Agreement	$47,910,694	$32,801,369	$0
	(53/53)	(51/53)	(0/53)
CDC DSLR Crisis Response Notice of Funding Opportunity	$0	$0	$0
	(0/53)	(0/53)	(0/53)
ASPR HPP Cooperative Agreement	$264,957	$0	$0
	(4/53)	(0/53)	(0/53)
DHS/FEMA Preparedness Grants (e.g., UASI, State Homeland Security Grant)	$0	$0	$233,077
	(0/53)	(0/53)	(1/53)
DHS/BioWatch Funding	$2,211,153	$0	$0
	(10/53)	(0/53)	(0/53)
State	$6,508,903	$1,638,666	$54,129
	(9/53)	(9/53)	(1/53)
EPA	$0	$0	$0
	(0/53)	(0/53)	(0/53)
FERN: FDA and USDA	$3,104,696	$2,160,943	$1,333,973
	(13/53)	(8/53)	(7/53)
Other	$2,776,097	$12,297	$95,526
	(6/53)	(1/53)	(1/53)
Total	$62,776,501	$36,613,275	$1,716,705
	(53/53)	(51/53)	(7/53)

Other specified responses include Public Health Emergency Preparedness (PHEP) Ebola Supplemental Funding and carry over funds. Individual responses are on file with APHL.

3. From July 1, 2017 to June 30, 2018, how much from each funding source was allocated to the following activities?

	PHEP Funds for Bio		PHEP Funds for Chem		PHEP Funds for Rad	
	n	$	n	$	n	$
Distributed to Other Laboratories	5	$1,988,258	0	$0	0	$0
Salaries & Fringe	52	$26,529,054	47	$13,845,445	0	$0
Equipment Purchase	14	$883,388	27	$5,821,009	0	$0
Equipment Maintenance	45	$4,474,769	38	$4,544,875	0	$0
Supplies	51	$3,622,998	48	$3,218,898	0	$0
Training & Travel	45	$670,312	38	$302,555	0	$0
General Overhead	33	$3,399,330	29	$3,148,979	0	$0
Renovations	2	$12,148	2	$14,472	0	$0
Unobligated/Unspent	10	$1,422,718	5	$744,337	0	$0
Other	38	$4,907,718	23	$1,160,799	0	$0

Other specified responses included IT staffing costs, courier service fees and conference fees. Individual responses are on file with APHL.

4. What factors affected your PHL's ability to carry out preparedness activities from July 1, 2017 to June 30, 2018? Please check all that apply.

	Response	%
Non-competitive salaries	22	41.5%
Other - please specify	22	41.5%
Lack of qualified applicants	19	35.8%
Lack of funding	14	26.4%
No difficulties experienced	12	22.6%
Position eliminated	8	15.1%
Hiring freezes	4	7.5%
Furloughs	3	5.7%
Lay-offs	1	1.9%

n=53. Other specified responses included training difficulties, loss of personnel and lack of funding for maintenance contracts. Individual responses are on file with APHL.

SECTION 3: PLANNING & RESPONSE

5. (NHSPI & TFAH) Does your PHL have a plan to handle a significant surge in testing over a six to eight week period in response to an outbreak or other public health event?

	Response	%
Yes (Please go to Question 6a)	46	86.8%
No (Please go to Question 7)	7	13.2%

n=53

6. (NHSPI) Does your PHL have a Continuity of Operations Plan (COOP) consistent with National Incident Management System (NIMS) guidelines?

	Response	%
Yes, a laboratory specific COOP	20	37.7%
Yes, a state agency or department-wide COOP that includes the laboratory	30	56.6%
No, but the laboratory or state is developing a COOP	3	5.7%
No	0	0.0%

n=53

6a. If your PHL shuts down and only a portion of staff were available to work, in terms of COOP, which test(s) are critical for your laboratory? Please check all that apply.

	Response	%
LRN testing (e.g., biological and chemical threat agents)	52	98.1%
Infectious diseases (e.g., reference and specialized testing) – please specify the critical tests	49	92.5%
Newborn screening	33	62.3%
Environmental health (e.g., water testing, lead testing)	31	58.5%
Food safety	27	50.9%
Other - please specify	17	32.1%

n=53. Individual responses are on file with APHL.

6b. From July 1, 2017 to June 30, 2018, did your PHL evaluate the functionality of your COOP via a real event or an exercise?

	Response	%
Yes	35	66.0%
No	18	34.0%

n=53

6c. From July 1, 2017 to June 30, 2018, did you activate your laboratory COOP?

	Response	%
Yes	12	22.6%
No	41	77.4%

n=53

6d. Are you willing to share a copy of your COOP?

	Response	%
Yes	30	56.6%
No	23	43.4%

n=53

6e. Please specify state, local and/or other jurisdictional requirements that may impact a response. For example, some states have licensure requirements and laboratorians without a license are not permitted to work in that state.

Individual responses for specific critical tests are on file with APHL.

7. Does your state have any legal and/or jurisdictional requirements that could complicate testing being performed by another state or prevent additional staff from coming on-site to perform testing (e.g., state licensure requirements)?

	Response	%
Yes, requirements prevent another state from assisting with testing - please provide more details	7	13.2%
Yes, requirements prevent additional staff from coming onsite - please provide more details	11	20.8%
No	35	66.0%

n=53. Individual responses for specific critical tests are on file with APHL.

8. (TFAH) Has your PHL implemented a laboratory management system (LIMS) to receive and report laboratory information electronically (e.g., electronic test order and report with hospitals and clinical labs, surveillance data from public health laboratory to epidemiology).

	Response	%
Yes, bidirectional capability to receive and report	28	52.8%
Report only	21	39.6%
Receive only	0	0.0%
No electronic messaging capability at this time	4	7.5%

n=53

8a. Do you have dedicated IT support for your LIMS?

	Response	%
Yes, the laboratory has personnel dedicated to LIMS	35	71.4%
Other - please specify	7	14.3%
No, the laboratory relies on external contractors (e.g., LIMS vendor)	3	6.1%
No, the laboratory receives IT personnel support from the state/local government for LIMS	3	6.1%
No	1	2.0%

n=49. Other responses include varying staffing support such as contractors.

9. (NHSPI) Please indicate the number of preparedness exercises your PHL conducted or participated in from July 1, 2017 to June 30, 2018.

	Tabletop Exercises	Drills	Functional Exercises	Full-Scale Exercises
Biological Threats	51	100	47	14
Chemical Threats	12	24	42	8
Radiological Threats	2	4	4	4
Multi-Hazards (e.g., any combo of bio, chem and rad threats)	5	11	9	4
Pandemic Influenza	4	0	1	0
COOP	13	14	4	0
Other	5	26	8	6

n=53

10. From July 1, 2017 to June 30, 2018 please enter the total number of samples and specimens you accepted and tested.

	Total Number Accepted	BT Agents Tested	CT Agents Tested	RT Agents Tested	Other Analyses
Clinical (e.g., Zika, PFAS)	323,274	9,279	120	9	304,539
Environmental (e.g., powder, food, water, etc.)	113,660	1,121	98	823	108,153
BioWatch	157,812	174,545	0	0	0

n=53

10a. How many of your PHL's environmental samples were from the following categories? Do not include clinical or BioWatch specimens/samples. Please enter "0" if none.

	Total Number Accepted
Other	110,059
Food/beverage	2,794
Letter/package with unknown powder	793
USPS sample (e.g., clean-up, BDS, etc.)	14

n=53. Other specified responses included animal samples, swabs of various household items and other liquid samples. Individual responses are on file with APHL.

11. (NHSPI) Does your PHL assure the timely transportation (pick-up and delivery) of specimens/samples 24/7/365 days to the appropriate public health LRN Reference Laboratory? (This system can encompass a state operated courier, FedEx, contract courier service, etc.)

	Response	%
Yes	52	98.1%
No	1	1.9%

n=53

12. (NHSPI) Does your PHL have a plan to receive samples from a sentinel laboratory during non-business hours?

	Response	%
Yes	53	100%
No	0	0%

n=53

13. From July 1, 2017 to June 30, 2018, was your LRN-C capability increased, decreased, or maintained?

	Response	%
Increased	7	13.2%
Decreased	3	5.7%
Maintained	43	81.1%

n=53

13a. How did your capability increase? Please check all that apply.

	Response	%
Added CT equipment	6	85.7%
Other - please specify	2	28.6%
Added one LRN-C method	1	14.3%
Added two LRN-C methods	0	0.0%
Added more than two LRN-C methods	0	0.0%
Added CT personnel	0	0.0%
Added CT level	0	0.0%

n=7. Other specified responses are on file with APHL.

13b. How did your capability decrease? Please check all that apply.

	Response	%
Other – please specify	3	100.0%
Lost CT personnel	2	66.7%
Unable to purchase new equipment required to add methods	2	66.7%
Unable to maintain service agreement(s) on current equipment	1	33.3%
Lost CT equipment	0	0.0%
Dropped a CT level	0	0.0%
Reduced support from the broader system	0	0.0%
Lack of connection to those responding (i.e., first responders, communities, epidemiologists, etc.) – please specify the barrier	0	0.0%

n=3. Other specific responses include being unable to maintain proficiency in LRN-C core methods, having facility issues that impact capabilities and a lack of funding for on-call response efforts, Individual response are on file with APHL.

SECTION 4: BIOLOGICAL THREATS

14. Does your PHL maintain a database of active sentinel clinical laboratories with the required elements (e.g., CLIA number, address, primary contact, 24/7 emergency contact) listed in the revised Sentinel Clinical Laboratories Definition?

	Response	%
Yes, for the entire state	51	96.2%
Yes, for my jurisdiction only (may not be the entire state)	2	3.8%
No	0	0.0%

n=53

15. How do you identify sentinel clinical laboratories? Please check all that apply

	Response	%
Use APHL, CDC LRN and ASM definition	48	90.6%
Use other definition – please specify	8	15.1%
We do not identify sentinel clinical laboratories	0	0.0%

n=53. Other specified responses are on file with APHL.

15a. Please provide any additional information on the criteria your laboratory used to identify a sentinel clinical laboratory.

Individual responses are on file with APHL.

16. Has your PHL awarded a certificate of recognition to sentinel clinical laboratories in your state? Please check all that apply.

	Response	%
Yes, awarded the LRN Joint Leadership Committee (JLC) approved certificate	13	24.5%
Yes, awarded a state developed certificate	8	15.1%
No	34	64.2%

n=53

17. Which of the following do you use to assess the competency of sentinel clinical laboratories to rule-out and refer BT agents? Please check all that apply.

	Response	%
College of American Pathologists (CAP) Laboratory Preparedness Exercise (LPX)	48	90.6%
State-developed	10	18.9%
Wisconsin State Laboratory of Hygiene Proficiency Testing (WSLHPT) / Challenge Set for Sentinel Laboratories	5	9.4%
Other – please specify	3	5.7%
None of the above	2	3.8%

n=53. Other specified responses are on file with APHL.

17a. Do these competency assessments impact the renewal status of sentinel clinical laboratories?

	Response	%
Yes	2	3.9%
No	49	96.1%

n=51

17b. How do you utilize the CAP LPX in your state? Please check all that apply.

	Response	%
Track which sentinel clinical laboratories contact the LRN Reference PHL	46	95.8%
Provide training and outreach to the sentinel clinical laboratories that do not provide the intended responses for the LPX organisms	37	77.1%
Test competency of LRN-B staff at your state PHL (e.g., your PHL actively participates in the testing of the LPX organisms)	35	72.9%
Test the ability of sentinel clinical laboratories to package and ship specimens to the LRN Reference PHL	24	50.0%
Other – please specify	2	4.2%

n=48. Other specified responses are on file with APHL.

18. From July 1, 2017 to June 30, 2018, did your PHL conduct an exercise or utilize a real event to evaluate the time for sentinel clinical laboratories to acknowledge receipt of an urgent message from your laboratory? (You may factor requests to sentinel clinical laboratories to contact you during the CAP LPX in your response.)

	Response	%
Yes	47	88.7%
No	6	11.3%

n=53

19. (NHSPI) For which of the following have you utilized a rapid method (HAN, blast email or fax) for your sentinel clinical laboratories and other partners? Please check all that apply.

	Response	%
Training events, such as providing a training calendar	45	84.9%
Routine updates	41	77.4%
Outbreaks	27	50.9%
Other - please specify	18	34.0%
Have not used it	2	3.8%

n=53. Other specified responses are on file with APHL and include sharing newsletters and providing information on lab training opportunities.

19a. Please provide any additional information on the type of outbreak and the steps and outcomes.

Individual responses are on file with APHL.

20. From July 1, 2017 to June 30, 2018, did your PHL sponsor any sentinel clinical laboratory trainings?

	Response	%
Yes	49	92.5%
No	4	7.5%

n=53

20a. Please indicate how many classes were provided and how many facilities were trained. Please enter "0" if none.

	Number of classes	Number of facilities	Number of laboratorians that received training
Rule-Out Testing Only	84	487	872
Packaging and Shipping (P&S) Only	192	1,253	2,924
Any Combo of Categories (Rule-Out, P&S)	43	128	396
Other	43	252	595

n=47

21. In addition to your BT Coordinator, CT Coordinator and BSO, do you have a position responsible for outreach to clinical laboratories?

	Response	%
Yes	33	62.3%
No	20	37.7%

n=53

22. Approximately how many sentinel clinical laboratories did your BT Coordinator and/or BSO physically visit in FY18? Enter 0 for none.

53 PHLs conducted 791 site visits to sentinel clinical laboratories.

23. Do you have a Laboratory Advisory Council or similar group where members of the clinical laboratory community are involved in communicating with or advising the PHL?

	Response	%
Yes	20	37.7%
No	24	45.3%
Planning in future	9	17.0%

n=53

23a. How often are meetings held?

	Response	%
Semi-annually	8	40.0%
Quarterly	4	20.0%
Other - please specify	6	30.0%
Annually	2	10.0%

n=20. Other specified responses are on file with APHL.

23b. What topics are discussed? Please check all that apply.

	Response	%
New lab tests or technology	18	90.0%
How to improve collaboration and communication	16	80.0%
Laboratory system improvement	13	65.0%
Other - please specify	10	50.0%

n=20. Other specified responses are on file with APHL and encompass reimbursements, emerging infectious diseases and grant information.

24. (TFAH) From July 1, 2017 to June 30, 2018, did your laboratory provide biosafety training and or provide information about biosafety training courses for sentinel clinical laboratories in your jurisdiction? Please check all that apply.

	Response	%
Yes, provided training	45	84.9%
Yes, provided information about training opportunities	33	62.3%
No	4	7.5%

n=53

24b. What were the barriers to providing training to sentinel clinical laboratories? Please check all that apply.

	Response	%
Other – please specify	3	75.0%
No funding	2	50.0%
Lack of interest from the sentinel clinical labs	2	50.0%
Information technology compatibility issues (e.g., different platforms for web based training)	2	50.0%
Lack of biosafety staff at the public health laboratory	1	25.0%

n=4. Other specified responses are on file with APHL.

24c. Please respond to the following topics below regarding the biosafety training your laboratory provided.

	Total	Average	Median
Number of biosafety courses offered	246	5	3
Number of participating sentinel clinical laboratories	1110	25	17
Number of participating sentinel clinical laboratorians	2700	60	36

n=45

25. Does your laboratory have a biosafety professional?

	Response	%
Yes, full-time staff dedicated to biosafety	33	62.3%
Yes, part-time staff	15	28.3%
No	5	9.4%

n=53

25a. Please indicate the percentage of time breakdown for the BSO duties and include what other assignments they take.

	<5%		5%-24%		25%-49%		50%-74%		75%-100%	
	n	%	n	%	n	%	n	%	n	%
Internal biosafety/biosecurity	0	0.0	3	9.1	4	12.1	13	39.4	13	39.4
External clinical lab outreach	2	6.1	14	42.4	11	33.3	5	15.2	1	3.0
Other duties	17	51.5	10	30.3	3	9.1	3	9.1	0	0.0

Specified responses are on file with APHL.

26. Please share any major successes and challenges your laboratory encountered regarding biological threats preparedness (e.g., response to an event, development of new tests, etc.) during the time period of July 1, 2017 to June 30, 2018. In addition to your stories, we encourage you to share best practices. Please note an APHL staff member will contact you to follow-up on these stories and also to solicit photos of your laboratorians in action responding to public health threats. Stories with pictures will be more likely featured in next year's All-Hazards Laboratory Preparedness issue briefs or other publications, such as *Lab Matters*, eUpdate or APHL's blog.

Individual responses are on file with APHL.

SECTION 5: CHEMICAL THREATS

27. From July 1, 2017 to June 30, 2018, did your PHL utilize your CT capabilities to respond to any of the following? Please check all that apply.

	Response	%
None	23	43.4%
Biomonitoring investigations	20	37.7%
Community concern (e.g., exposure to a potentially toxic chemical)	15	28.3%
Chemical threat	13	24.5%
Chemical spill or other emergency incident	9	17.0%
Other - please specify	9	17.0%

n=53. Other specified responses are on file with APHL and encompass opioid response, blood lead and suspicious powder testing.

27a. Which LRN-C resources are you utilizing for your laboratory's biomonitoring efforts? Please check all that apply.

	Response	%
Personnel	18	90.0%
Instruments/ equipment	18	90.0%
Analytical methods	15	75.0%
Technical training	14	70.0%
Relationships with clinical community, other relationships	10	50.0%

n=20. Other specified responses are on file with APHL and encompass personnel, equipment and technical training.

27b. What other funding sources are you utilizing for biomonitoring? Please check all that apply.

	Response	%
Other federal – please explain	9	53.0%
State – please explain	6	35.0%
Other – please explain	4	24.0%

n=17. Other specified responses are on file with APHL and encompass billable services and university grants.

28. As of June 30, 2018, for which proficiency tests administered by CDC/NCEH did your lab qualify? Please check all that apply.

	Response	%
Qualified for Sample Collection, Packing, and Shipping (SCPaS)	49	92.5%
Cyanide in blood by GC-MS	41	77.4%
VOCs in blood by GC-MS	41	77.4%
Tetramine in urine by GC-MS	41	77.4%
Ricinine/Abrine in urine by LC-MS/MS	41	77.4%
Cd/Hg/Pb in blood by ICP-MS	40	75.5%
Nerve agent metabolites in urine by LC-MS/MS	40	75.5%
Nerve agent metabolites in blood by LC-MS/MS	40	75.5%
Trace metals panel in urine by ICP-MS	40	75.5%
As/Se in urine by ICP-MS	36	67.9%
Tetranitromethane biomarker in urine by LC-MS/MS	21	39.6%
Lewisite metabolite in urine by LC-ICP-MS	16	30.2%
Sulfur mustard metabolite in urine by LC-MS/MS	13	24.5%
Nitrogen mustard metabolite in urine by LC-MS/MS	9	17.0%
Not qualified	2	3.8%

n=53

29. (NHSPI) Please provide the certification/accreditation status of your LRN-C laboratory. Please check all that apply.

	Currently certified / accredited		Planning for certification / accreditation next year		Neither	
	n	%	n	%	n	%
CLIA (toxicology sub-speciality)	33	62.3%	3	5.7%	17	32.1%
CAP	9	17.0%	0	0.0%	44	83.0%
ISO	6	11.3%	6	11.3%	41	77.4%
Other	5	9.4%	0	0.0%	48	90.6%

n=53. Other specified responses are on file with APHL.

30. Does your PHL plan to replace the following LRN-C instruments? Please check all that apply.

	Response	%
LC/MS or LC/MS/MS (used for Organo Phosphate Nerve Agents (OPNA), abrin/ricinine, MTP3, other organic chemicals)	26	49.1%
ICP/MS (used for metals)	7	13.2%
GC/MS with Multi-Purpose Sampler (MPS) (to test for VOCs, cyanide, other organic chemicals)	7	13.2%
Equipment already in place; replacements not needed	6	11.3%
Other (used for solid phase extraction) – please specify	5	9.4%
GC/MS (used for tetramine and other organic chemicals)	2	3.8%
None of the above	14	26.4%

n=53. Other specified responses are on file with APHL.

30a. How many of each instrument do you plan to replace?

	n	Average
ICP/MS (used for metals)	7	1.1
GC/MS (used for tetramine and other organic chemicals)	2	1.0
GC/MS with Multi-Purpose Sampler (MPS) (to test for VOCs, cyanide, other organic chemicals)	7	1.0
LC/MS or LC/MS/MS (used for Organo Phosphate Nerve Agents (OPNA), abrin/ricinine, MTP3, other organic chemicals)	26	1.2
Other (used for solid phase extraction)	5	1.4

n=34

30b. When do you plan to replace the instrument(s)?

	Within 1 year		1 to 3 years		3 or more years		I don't know	
	n	%	n	%	n	%	n	%
LC/MS or LC/MS/MS (used for Organo Phosphate Nerve Agents (OPNA), abrin/ricinine, MTP3, other organic chemicals)	10	38.5%	15	57.7%	1	3.8%	0	0.0%
ICP/MS (used for metals)	4	57.1%	3	42.9%	0	0.0%	0	0.0%
GC/MS with Multi-Purpose Sampler (MPS) (to test for VOCs, cyanide, other organic chemicals)	2	28.6%	4	57.1%	1	14.3%	0	0.0%
Other (used for solid phase extraction) – please specify	4	80.0%	0	0.0%	1	20.0%	0	0.0%
GC/MS (used for tetramine and other organic chemicals)	1	50.0%	1	50.0%	0	0.0%	0	0.0%

30c. How much would it cost to replace the instrument(s)?

Individual responses are on file with APHL.

30d. Is the instrument(s) used for programs other than CT?

	Yes		No	
	n	%	n	%
LC/MS or LC/MS/MS (used for Organo Phosphate Nerve Agents (OPNA), abrin/ricinine, MTP3, other organic chemicals)	11	42.3%	15	57.7%
ICP/MS (used for metals)	4	57.1%	3	42.9%
GC/MS with Multi-Purpose Sampler (MPS) (to test for VOCs, cyanide, other organic chemicals)	1	14.3%	6	85.7%
Other (used for solid phase extraction) – please specify	2	40.0%	3	60.0%
GC/MS (used for tetramine and other organic chemicals)	0	0.0%	2	100.0%

30d. Is the instrument(s) used for programs other than CT?

Individual responses are on file with APHL.

31. Does your PHL plan to purchase a service contract for the following LRN-C instruments? Please check all that apply.

	Response	%
ICP/MS	39	73.6%
LC/MS	38	71.7%
GC/MS	32	60.4%
GC/MS (MPS)	30	56.6%
Other – please specify	19	35.8%
None of the above	11	20.8%

n=53. Individual responses are on file with APHL.

31a. How much would the service contract cost?

Individual responses are on file with APHL.

31b. How many years will the service contract cover?

Individual responses are on file with APHL.

31c. What is the source of funding for service contracts for CT instruments? Please check all that apply.

	Response	%
CDC PHEP Cooperative Agreement	40	75.5%
State Funding	9	17.0%
Other – please specify [1]	9	17.0%
Other Federal – please specify [2]	6	11.3%
Local Funding	1	1.9%

n=53. "Other" specified responses are on file with APHL and include no instrumentation, lack of funding and instruments covered by existing warranty. "Other Federal" sources of funding for instrumentation include National Institutes of Health, FDA and CDC Biomonitoring Grants.

32. Please share any major successes and challenges your laboratory encountered regarding chemical threats preparedness (e.g., response to an event, development of new tests, etc.) during the time period of July 1, 2017 to June 30, 2018. APHL staff will contact you to follow-up on these stories and to solicit photos. Stories may be featured in issue briefs or other APHL publications, such as *Lab Matters*, eUpdate, or APHL's blog.

Individual responses are on file with APHL.

SECTION 6: RADIOLOGICAL THREATS

33. Does your laboratory have the ability to perform radiological testing in the following matrices? Please check all that apply.

	Yes		No	
	n	%	n	%
Environmental samples	25	47.2%	28	52.8%
Food samples	18	34.0%	35	66.0%
Human clinical (bioassay) samples	3	5.7%	50	94.3%

n=53

33a. Is your laboratory interested in developing the capability to test for radionuclides to measure human radiation contamination and become CLIA compliant for clinical samples?

	Response	%
Yes	15	30.0%
No – please specify why not	35	70.0%

n=50. Individual responses are on file with APHL.

33b. If another laboratory in your state performs clinical bioassay testing, please list the laboratory's name and briefly describe their capability (e.g., radionuclides tested and throughput per week)

Individual responses are on file with APHL.

34. Does your PHL require first responders and law enforcement to screen unknown samples for radiological and explosives and provide preliminary screening information before submitting to the laboratory for testing?

	Response	%
Yes	50	94.3%
No	3	5.7%

n=53

35. Are you aware of the National Alliance for Radiation Readiness NARR?

	Response	%
Yes	25	47.2%
No	28	52.8%

n=53

36. Does your laboratory have responsibility for radiological preparedness? (e.g., testing environmental, food or clinical samples)

	Response	%
Yes – please describe	21	39.6%
No	32	60.4%

n=53. Individual responses are on file with APHL.

37. Does your state have a nuclear power plant?

	Response	%
Yes – please describe	32	60.4%
No	21	39.6%

n=53

37a. Does your laboratory conduct baseline environmental monitoring near a nuclear power plant?

	Response	%
Yes	17	53.1%
No	15	46.9%

n=32

38. Please share any major successes and challenges your laboratory encountered regarding radiological threats preparedness (e.g., response to an event, development of new tests, etc.) during the time period of July 1, 2017 to June 30, 2018. APHL staff will contact you to follow-up on these stories and to solicit photos. Stories may be featured in issue briefs or other APHL publications, such as Lab Matters, eUpdate, or APHL's blog.

Individual responses are on file with APHL.

GLOSSARY

Branch State Public Health Laboratory
A laboratory that is part of a group of laboratories reporting to a central state laboratory. Florida, for example, has a branch system.

Drill
A coordinated, supervised activity usually employed to test a single specific operation or function within a single entity (e.g., a fire department conducts a decontamination drill).

Full-Scale Exercises (FSE)
A multi-agency, multi-jurisdictional, multi-discipline exercise involving functional (e.g., joint field office, emergency operation centers, etc.) and "boots on the ground" response (e.g., firefighters decontaminating mock victims).

Functional Exercise (FE)
Examines and/or validates the coordination, command, and control between various multi-agency coordination centers (e.g., emergency operation center, joint field office, etc.). A functional exercise does not involve any "boots on the ground" (i.e., first responders or emergency officials responding to an incident in real time).

Tabletop Exercise (TTX)
Exercise involving key personnel discussing simulated scenarios in an informal setting. TTXs can be used to assess plans, policies, and procedures.

ACRONYMS

APHL.....Association of Public Health Laboratories

ASM.....American Society for Microbiology

ASPR .....Assistant Secretary for Preparedness and Response

BDS .....Biohazard Detection System

BT.....Bioterrorism or Biological Threat

CAP .....College of American Pathologists

CDC.....US Centers for Disease Control and Prevention

CLIA.....Clinical Laboratory Improvement Amendments

COOP.....Continuity of Operations Plan

CST .....Civil Support Team

CT.....Chemical Terrorism or Chemical Threat

CWA.....Chemical Warfare Agent

DHS.....US Department of Homeland Security

DoD .....US Department of Defense

EMT .....Emergency Medical Technician

EPA.....US Environmental Protection Agency

ERLN .....Environmental Response Laboratory Network

FBI.....US Federal Bureau of Investigation

FEMA.....US Federal Emergency Management Agency

FERN .....Food Emergency Response Network

FTIR.....Fourier-Transform Infrared Spectroscopy

GC-MS.....Gas Chromatography-Mass Spectrometry

HAN .....Health Alert Network

HAZMAT.....Hazardous Materials

HHS .....US Department of Health and Human Services

HPP .....Hospital Preparedness Program

HSEEP.....Homeland Security Exercise and Evaluation Program

ICP-MS.....Inductively Coupled Plasma-Mass Spectrometry

ISO.....International Organization for Standardization

JLC.....Joint Leadership Committee

LC-MS/MS..Liquid Chromatography-Tandem Mass Spectrome-try

LIMS.....Laboratory Information Management System

LPX.....Laboratory Preparedness Exercise

LPHL.....Local Public Health Laboratory

LRN .....Laboratory Response Network

LRN-B.....Laboratory Response Network for Biological Threat Preparedness

LRN-C.....Laboratory Response Network for Chemical Threat Preparedness

NAHLN.....National Animal Health Laboratory Network

NIMS.....National Incident Management System

NHSIP .....National Health Security Preparedness Index

NPDN.....National Plant Diagnostic Network

NRC .....Nuclear Regulatory Commission

PCR .....Polymerase Chain Reaction

PHEP.....Public Health Emergency Preparedness

PHL.....Public Health Laboratory

P&S .....Packaging and Shipping

RT.....Radiological Terrorism or Radiological Threat

SCPaS.....Sample Collection, Packing, and Shipping

SPHL.....State Public Health Laboratory

TFAH.....Trust for America's Health

UASI .....Urban Areas Security Initiative

USPS .....US Postal Service

Vet-LIRN.....Veterinary Laboratory Investigation and Response Network

WLA.....Water Laboratory Alliance

WSLHPT.....Wisconsin State Laboratory of Hygiene Proficiency Testing