2016 APHL Biosafety and Biosecurity Survey

Summary Data Report

DECEMBER 2016

APHL ASSOCIATION OF PUBLIC HEALTH LABORATORIES™

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Introduction

The 2016 APHL Biosafety and Biosecurity Survey was launched on February 29, 2016 to 61* Centers for Disease Control and Prevention (CDC) Epidemiology and Laboratory Capacity for Infectious Diseases (ELC) Cooperative Agreement funded state, territory and local public health laboratories (PHLs). Data collection concluded in June 2016 with 57 laboratories completing the survey yielding a response rate of 93.4% for all laboratories issued the survey.

Table 1 provides a breakdown of survey completions for PHLs which received funds via the CDC ELC Ebola Supplemental Project B-Enhanced Laboratory Biosafety and Biosecurity Capacity, herein referred to as ELC Biosafety.

Table 1: Completed Surveys by Status with ELC Biosafety Funding

	Total # of laboratories	# of completed surveys	Survey response rate
Funded ELC Biosafety Laboratories	61	57	93.4%

Table 2: Completed Surveys by PHL Type

	Total # of laboratories	%
State PHLs	48	84.2
Local PHLs	5	8.8
Territorial PHLs	4	7.0

*62 awardees received Ebola Biosafety funds from the CDC ELC Program. The City of Chicago combined its responses with the state of Illinois, thus for purposes of this report, the total number of ELC-funded laboratories is 61.

For questions pertaining to this survey and summary data report, please contact APHL Public Health Preparedness and Response Staff at biosafety@aphl.org.

Funding

1. Did your laboratory receive funding via CDC ELC Biosafety in 2015?

Answer	n	%
Yes	57	100.0
No	0	0.0

2. Are there any funding gaps for laboratory biosafety and biosecurity?

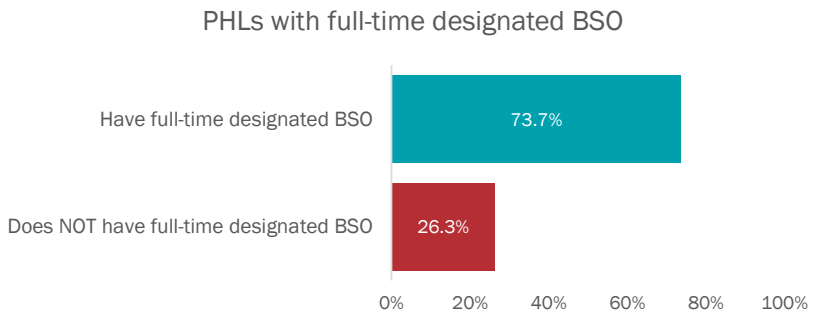
Answer	n	%
Yes (Please describe)	29	50.9
No	28	49.1

Funding gaps described by those laboratories that reported "yes" included lack of biosafety personnel, training, travel funds for clinical laboratory outreach and equipment. In addition, many ongoing costs such as salaries and training were dependent on a steady stream of funding. As such, these areas are specifically affected by uncertain funding. Individual responses are on file with APHL.

Workforce

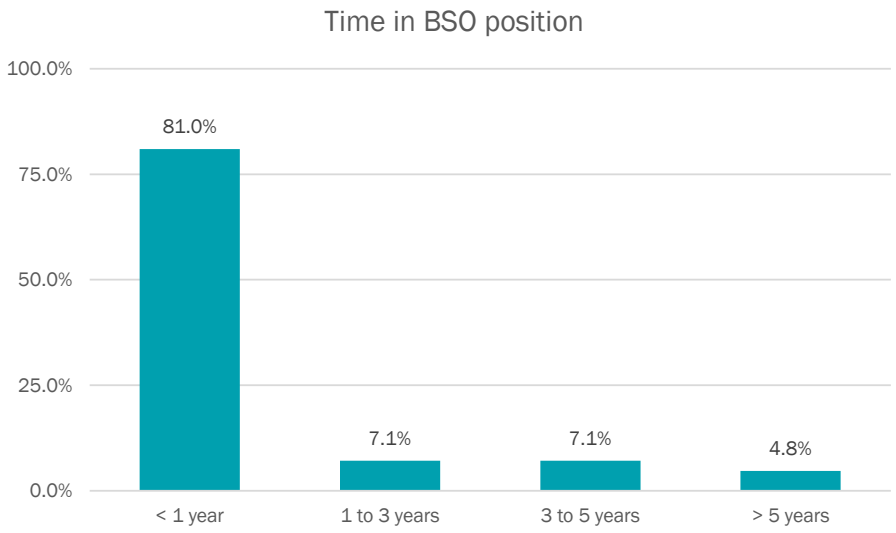
3. Does your laboratory have a full time designated Biosafety Official (BSO)?

Answer	n	%
Yes (Please go to 3a & b)	42	73.7
No (Please go to 3c & skip to 6)	15	26.3



3a. How long has the individual been in this role at your laboratory?

Answer	n	%
< 1 year	34	81.0
1 to 3 years	3	7.1
3 to 5 years	3	7.1
> 5 years	2	4.8



3b. Please provide the BSO name (acting or permanent) and Biosafety Outreach Official name (if applicable).

Individual responses are on file with APHL.

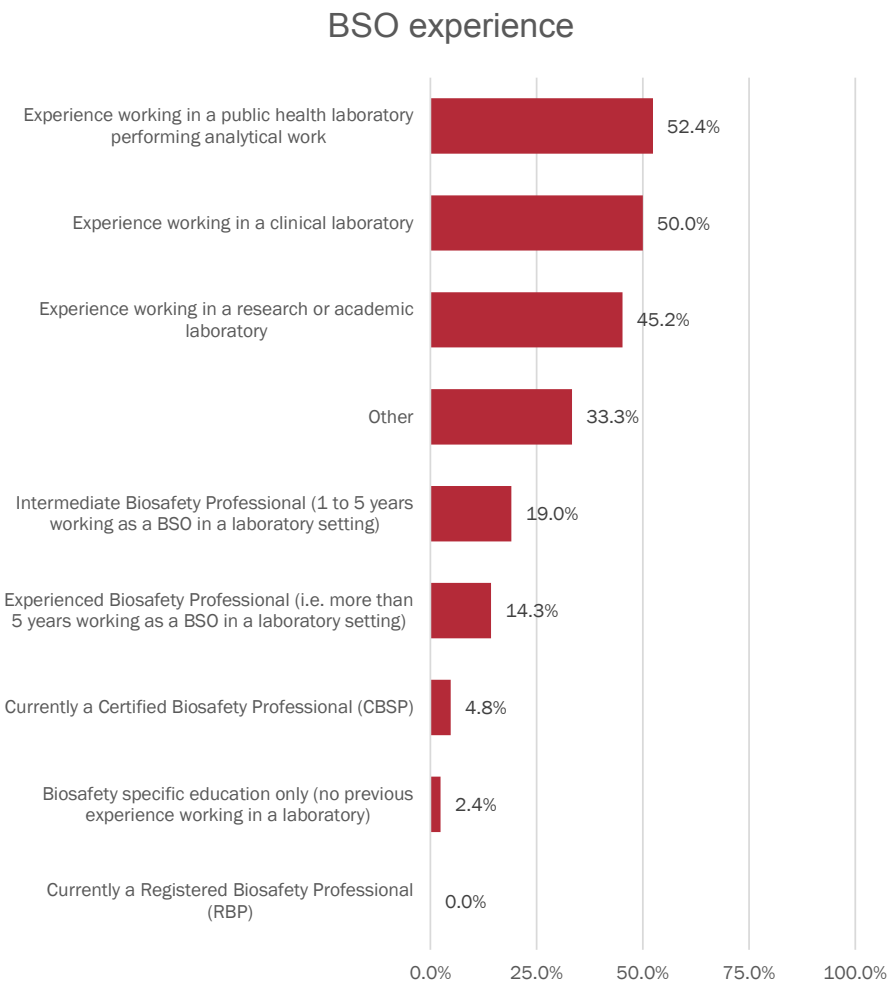
3c. Please indicate the reasons for not having a BSO. *Please check all that apply.*

Answer	n	%
Other - please specify	10	66.7
Lack of long-term funding for staff	8	53.3
Delays due to jurisdiction's personnel recruitment process	7	46.7
Delays due to challenges in finding qualified personnel	4	26.7
Delays in obtaining CDC ELC funds through state or other jurisdictions	3	20.0
Offers rejected due to non-competitive salaries	1	6.7

Specified responses for reasons for not having a BSO included state hiring freezes, no comparable position in state job classifications/specifications and roles/duties of BSO were designated to personnel currently serving in another position. Individual responses are on file with APHL.

4. What is the experience level of your BSO? *Please check all that apply.*

Answer	n	%
Experience working in a PHL performing analytical work	22	52.4
Experience working in a clinical laboratory	21	50.0
Experience working in a research or academic laboratory	19	45.2
Other - please specify	14	33.3
Intermediate Biosafety professional (1 to 5 years working as a BSO in a laboratory setting)	8	19.0
Experienced Biosafety professional (more than 5 years working as a BSO in a laboratory setting)	6	14.3
Currently a Certified Biosafety Professional (CBSP)	2	4.8
Biosafety-specific education only (no previous experience working in a laboratory)	1	2.4
Currently a Registered Biosafety Professional (RBP)	0	0.0



Specified responses for the experience level of BSO included work as infection control in hospitals, many years of experience in BSL-2 and BSL-3 laboratories, and safety trainer. Individual responses are on file with APHL.

5. Please check any trainings offered to your BSO. *Please check all that apply.*

Answer	n	%
Conferences - please specify	32	76.2
Institution-specific - please specify	24	57.1
APHL courses - please specify	22	52.4
External courses (e.g. American Biological Safety Association (ABSA) training course on biosafety) - please specify	21	50.0
Other - please specify	20	47.6

Specified responses for "Conferences": In order of weighted response: CDC International Biosafety Symposium, ABSA Annual Meeting, APHL Annual Meeting, ELC Grantee Meeting, Eagleson Institute, Laboratory Safety Leadership Summit and National Ebola Training and Education Center. Individual responses are on file with APHL.

Specified responses for "Institution specific": The vast majority of responses included OSHA Blood-Borne Pathogen training. Other popular responses included chemical hygiene/hazard communication, general biosafety, BSL-3/Select Agent, and Division 6.2 Infectious Substance Packaging and Shipping. Numerous other biosafety related trainings were also listed. Individual responses are on file with APHL.

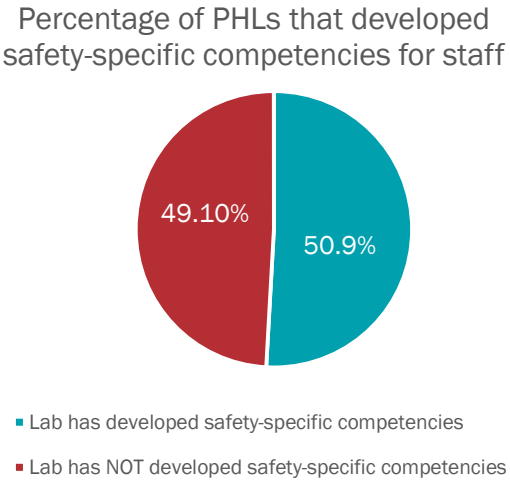
Specified responses for "APHL Courses": The vast majority of responses included biosafety and biosecurity webinars provided by APHL in the past year. In addition, the APHL-sponsored Division 6.2 Infectious Substance Packaging and Shipping training was also mentioned. Individual responses are on file with APHL.

Specified responses for "External Courses": ABSA was the most cited provider, including their Principle and Practices of Biosafety Course and on-line training modules. Other external providers included Eagleson Institute and National Ebola Training and Education Center. Individual responses are on file with APHL.

Specified responses for "Other": Responses varied greatly with very little consensus, but providers included APHL, CDC, Behavioral-Based Improvement Solutions and the Association for Professionals in Infection Control and Epidemiology (APIC). Individual responses are on file with APHL.

6. Have you developed safety-specific competencies for laboratory staff?

Answer	n	%
Yes	29	50.9
No (Please explain the reasons why you did not develop safety competencies)	28	49.1



The majority of specified responses for the reasons why laboratories did not develop safety competencies were time constraints followed by laboratories currently in the process of incorporating safety competencies. Individual responses are on file with APHL.

7. Please indicate whether you are aware of the following Competency Guidelines:

Answer	n	%
CDC. Guidelines for Biosafety Laboratory Competency. MMWR 2011,60(Suppl):1-28	50	87.7
CDC. Competency Guidelines for Public Health Laboratory Professionals. MMWR 2015,60(Suppl.):1-95	49	86.0

8. From May 2015 to February 2016, please provide information on the types of training courses your laboratorians and BSO completed.

% of laboratorians (excluding BSO) completing training courses												
	0%		1-25%		26-50%		51-75%		76-100%		NA	
	n	%	n	%	n	%	n	%	n	%	n	%
Biosecurity Plan	3	5.3	2	3.5	0	0.0	0	0.0	49	86.0	3	5.3
Select Agent Regulations	3	5.3	0	0.0	0	0.0	1	1.8	49	86.0	4	7.0
Personal Protective Equipment	2	3.5	3	5.3	1	1.8	2	3.5	46	80.7	3	5.3
Bloodborne Pathogens	3	5.3	3	5.3	0	0.0	1	1.8	46	80.7	4	7.0
Emergency Management and Response	3	5.3	1	1.8	0	0.0	2	3.5	44	77.2	7	12.3
Sharps Hazard	2	3.5	3	5.3	0	0.0	2	3.5	43	75.4	7	12.3
Certification in packaging/shipping of IATA Divison 6.2 infectious substances (Category A)	1	1.8	2	3.5	3	5.3	6	10.5	43	75.4	2	3.5
Chemical Hazards	5	8.8	2	3.5	1	1.8	1	1.8	42	73.7	6	10.5
Decontamination	4	7.0	2	3.5	0	0.0	2	3.5	42	73.7	7	12.3
BSL-2 Safe Practices	6	10.5	2	3.5	0	0.0	2	3.5	41	71.9	6	10.5
Biosafety Cabinets and Other Engineering Controls	3	5.3	3	5.3	0	0.0	4	7.0	41	71.9	6	10.5
Spill Prevention, Control and Countermeasure	3	5.3	3	5.3	1	1.8	2	3.5	40	70.2	8	14.0
Regulated Waste Management	7	12.3	3	5.3	1	1.8	1	1.8	38	66.7	7	12.3
Biological Risk Assessment	11	19.3	5	8.8	4	7.0	1	1.8	23	40.4	13	22.8
Safe Handling and Use of Cryogenic Liquids	9	15.8	2	3.5	0	0.0	0	0.0	15	26.3	31	54.4

Has BSO completed training?	Yes		No		NA	
	n	%	n	%	n	%
Bloodborne Pathogens	45	78.9	3	5.3	9	15.8
Personal Protective Equipment	43	75.4	4	7.0	10	17.5
Spill Prevention, Control and Countermeasure	42	73.7	6	10.5	9	15.8
Biosafety Cabinets and Other Engineering Controls	41	71.9	6	10.5	10	17.5
Sharps Hazard	41	71.9	5	8.8	11	19.3
Chemical Hazards	41	71.9	5	8.8	11	19.3
BSL-2 Safe Practices	40	70.2	5	8.8	12	21.1
Emergency Management and Response	39	68.4	5	8.8	13	22.8
Decontamination	38	66.7	6	10.5	13	22.8
Regulated Waste Management	38	66.7	6	10.5	13	22.8
Certification in packaging/shipping of IATA Divison 6.2 infectious substances (Category A)	38	66.7	10	17.5	9	15.8
Biological Risk Assessment	34	59.6	11	19.3	12	21.1
Biosecurity Plan	34	59.6	11	19.3	12	21.1
BSL-3 Safety Practices	34	59.6	10	17.5	13	22.8
Select Agent Regulations	32	56.1	11	19.3	14	24.6
Safe Handling and Use of Cryogenic Liquids	14	24.6	12	21.1	31	54.4

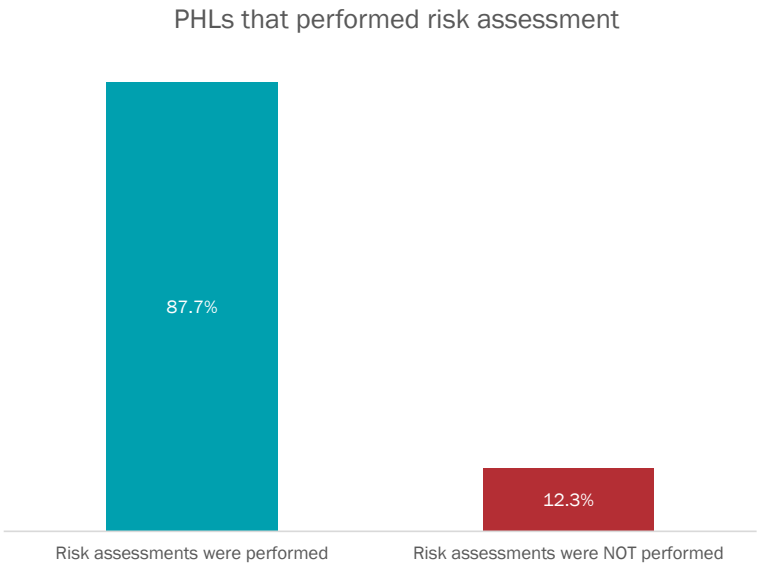
8a. Please indicate if there are any other types of training courses that your laboratorians or BSO have completed.

The majority of specified responses for other types of training courses laboratorians or BSOs have completed were APHL and ABSA webinars and conferences. Other responses included active shooter training, incident response and LRN provided trainings. Individual responses are on file with APHL.

Risk Assessment

9. From May 2015 to February 2016, has your PHL performed any risk assessments?

Answer	n	%
Yes (Please go to 9a)	50	87.7
No	7	12.3



9a. Did you identify any gaps?

Answer	n	%
Yes - please specify (Please go to 9b)	31	62.0
No	19	38.0

The majority of risk assessment gaps described by those laboratories that reported "Yes" were proper PPE utilization, Zika testing techniques, procedure gaps and waste management. Individual responses are on file with APHL.

9b. Have you taken steps to mitigate the gaps identified from the risk assessment?

Answer	n	%
Yes - please describe the steps	31	100.0
No	0	0.0

The majority of specified responses from those laboratories that reported "Yes" were proper PPE training, updating their SOPs and updating their engineering controls. Individual responses are on file with APHL.

10. Please indicate the frequency and reasons for completing risk assessments on the following lab sections. Please check all that apply.

	Annually		Quarterly		Biannually		New Agent		Change in Procedure		Change in Equipment		Incident		New Staff		None	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Molecular Testing	22	38.6	0	0.0	2	3.5	42	73.7	36	63.2	29	50.9	22	38.6	10	17.5	3	5.3
Bacteriology/ Microbiology	24	42.1	0	0.0	2	3.5	34	59.6	32	56.1	28	49.1	26	45.6	11	19.3	7	12.3
Virology	21	36.8	0	0.0	2	3.5	41	71.9	33	57.9	26	45.6	21	36.8	10	17.5	9	15.8
Parasitology	16	28.1	0	0.0	1	1.8	17	29.8	20	35.1	16	28.1	15	26.3	6	10.5	28	49.1
Chemistry	20	35.1	0	0.0	0	0.0	20	35.1	24	42.1	19	33.3	16	28.1	7	12.3	22	38.6
LRN-B	23	40.4	1	1.8	2	3.5	34	59.6	32	56.1	23	40.4	23	40.4	9	15.8	10	17.5
LRN-C	18	31.6	1	1.8	1	1.8	16.	28.1	21	36.8	15	26.3	14	24.6	8	14.0	25	43.9

10a. If you completed risk assessments for other lab sections, please provide the reasons for the assessment.

The specified responses from those labs that have completed risk assessments for other lab sections included providing risk assessments for each section of the lab that performs testing on specimens (mycology, mycobacteriology, newborn screening and serology), addition of new agents for testing and providing risk assessments for every task performed in each section of the lab. Individual responses are on file with APHL.

11. Do you have a mechanism to share documentation for risk assessments and risk mitigation with laboratory personnel?

Answer	n	%
Yes	52	91.2
No	5	8.8

Outreach to Clinical Laboratories

12. How many sentinel clinical laboratories do you have within your jurisdiction?

Total from all respondents	Total # of laboratories
Sentinel clinical laboratories which meet the APHL-CDC-ASM definition	4,192
Additional clinical laboratories (as described in the ELC Performance Measures Guidance)	1002

Sentinel clinical laboratories which meet the APHL-CDC-ASM definition			Additional clinical laboratories (as described in the ELC Performance Measures Guidance)		
Per a jurisdiction (state, local or territorial)	n	%	Per a jurisdiction (state, local or territorial)	n	%
0	1	1.8	0	36	63.2
1-49	27	47.4	1-49	14	24.6
50-99	18	31.6	50-99	3	5.3
100-199	6	10.5	100-199	3	5.3
200+	5	8.8	200+	1	1.8

13. What forms of communication do you use within the clinical laboratories? *Please check all that apply.*

Answer	n	%
Email	56	98.2
Phone	53	93.0
Site visits	41	71.9
Meetings hosted by my PHL	25	43.9
List serv	21	36.8
Newsletter	21	36.8
Other - please specify	22	38.6

The majority of specified responses for forms of communication included faxing, websites and surveys. Individual responses are on file with APHL.

14. From May 2015 to February 2016, have you conducted any of the following with your clinical laboratories?

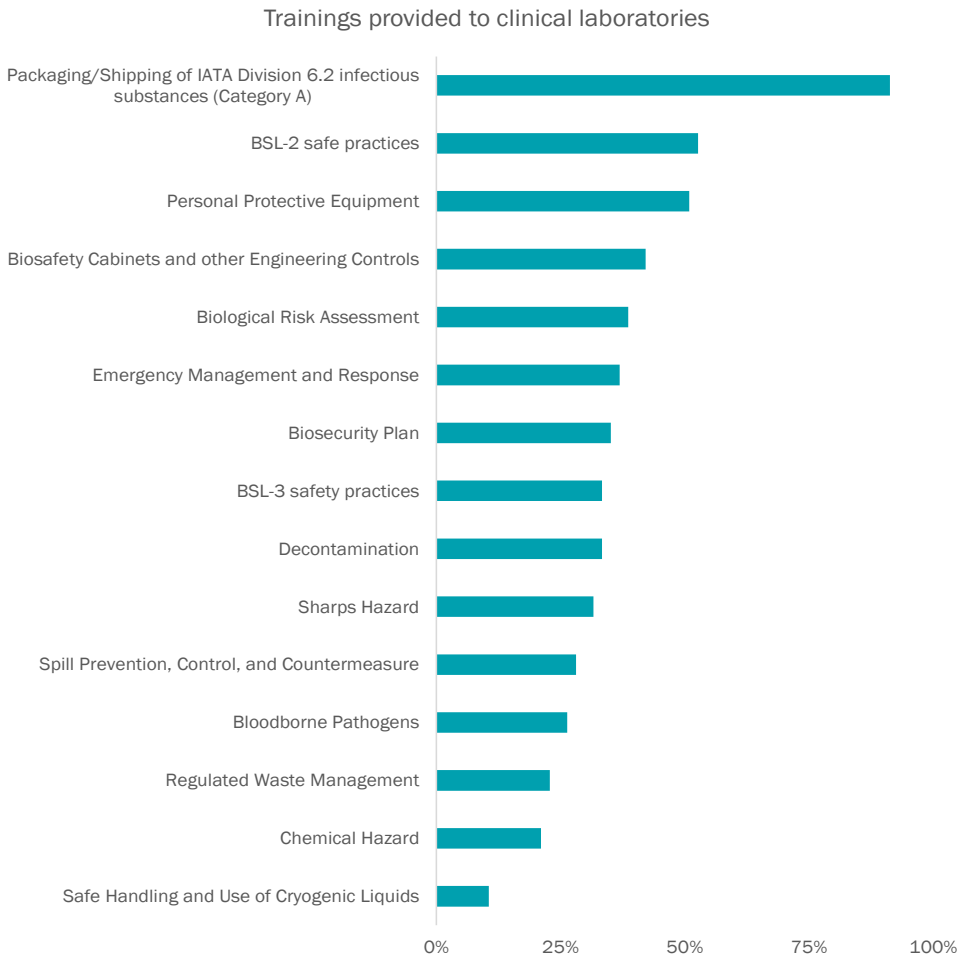
Answer	n	%
Performed site visits Please list the number of clinical laboratories you visited	31	54.4
Performed risk assessments	13	22.8
Provided risk assessment templates	14	24.6
None of the above	22	38.6

Total from all respondents	Total # of labs
Clinical laboratories visited	293

# of Clinical Laboratories Visited per Respondent	n	%
1-4 labs visited	18	58.1
5-9 labs visited	4	12.9
10-19 labs visited	5	16.1
20+ labs visited	4	12.9

15. From May 2015 to February 2016, please indicate who provided the following trainings to the clinical laboratories. *Please check all that apply.*

	Laboratories provided training		Did not provide training		APHL		CDC		NLTN		Other		My PHL	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Packaging/Shipping of IATA Division 6.2 infectious substances (Category A)	52	91.2	5	8.8	9	15.8	9	15.8	8	14.0	16	28.1	33	57.9
BSL-2 safe practices	30	52.6	27	47.4	3	5.3	2	3.5	2	3.5	8	14.0	21	36.8
Personal Protective Equipment	29	50.9	28	49.1	0	0.0	4	7.0	2	3.5	8	14.0	20	35.1
Biosafety Cabinets and other Engineering Controls	24	42.1	33	57.9	0	0.0	2	3.5	2	3.5	7	12.3	18	31.6
Biological Risk Assessment	22	38.6	35	61.4	1	1.8	3	5.3	2	3.5	7	12.3	15	26.3
Emergency Management and Response	21	36.8	36	63.2	0	0.0	2	3.5	1	1.8	11	19.3	9	15.8
Biosecurity Plan	20	35.1	37	64.9	0	0.0	1	1.8	1	1.8	9	15.8	11	19.3
Decontamination	19	33.3	38	66.7	0	0.0	1	1.8	1	1.8	7	12.3	12	21.1
BSL-3 safety practices	19	33.3	38	66.7	0	0.0	2	3.5	1	1.8	5	8.8	15	26.3
Sharps Hazard	18	31.6	39	68.4	0	0.0	1	1.8	1	1.8	10	17.5	8	14.0
Spill Prevention, Control, and Countermeasure	16	28.1	41	71.9	0	0.0	1	1.8	1	1.8	9	15.8	7	12.3
Bloodborne Pathogens	15	26.3	42	73.7	0	0.0	1	1.8	0	0.0	12	21.1	3	5.3
Regulated Waste Management	13	22.8	44	77.2	0	0.0	2	3.5	1	1.8	10	17.5	3	5.3
Chemical Hazard	12	21.1	45	78.9	0	0.0	1	1.8	0	0.0	7	12.3	5	8.8
Safe Handling and Use of Cryogenic Liquids	6	10.5	51	89.5	0	0.0	1	1.8	0	0.0	6	10.5	0	0.0



15a. Please list any other training topics provided to clinical laboratories.

The majority of specified responses for other training topics provided included rule out/refer testing of select agents, EID training (Zika and Ebola) and sentinel laboratory training for clinical laboratories. Individual responses are on file with APHL.

16. Have you conducted any biosafety and biosecurity drills or exercises with your sentinel clinical laboratories from May 2015 to February 2016?

Answer	n	%
Yes Please briefly describe the drills or exercises	20	35.1
No Please specify any barriers	37	64.9

The majority of specified responses for the drills or exercises conducted included CAP Laboratory Preparedness Exercises, followed by communication drills and Ebola specific tabletop exercises. Individual responses are on file with APHL.

The majority of specified responses for the barriers of not conducting any drills or exercise included lack of time, staff and funding followed by communication and geographic separation of laboratories. Individual responses are on file with APHL.

17. Please list the top three challenges encountered with engaging your clinical laboratories and provide suggestions for solutions.

    The majority of specified responses for the top challenges encountered included lack of time, personnel, funding, communication and geographic separation of laboratories. Solutions to these challenges include providing on-site trainings and BSO visits, hiring additional staff including BSOs, securing grant opportunities to fund full time employees and other resources, creating a survey specific to sentinel laboratories to understand what they need and what they would like to learn about, and providing remote trainings such as conference calls and webinars. Individual responses are on file with APHL.

18. If you have a successful model for outreach to your sentinel clinical laboratories, please share a brief summary below. A successful model includes routine communications between the clinical and public health laboratory, participating in training and exercises, a newsletter or other resource such as a list serv, and other examples demonstrating that the clinical laboratory is actively connected to the public health laboratory. An APHL staff member will contact you to follow up on the model described below. *Limit to 250 words.*

    Individual responses are on file with APHL.

Training and Related Resource Needs

19. What types of biosafety and biosecurity training would you like APHL or other partners to develop?

    Responses for the types of training and audience included laboratory safety, designing risk assessments, case studies on laboratory accidents, waste management and a guide for new BSOs. These trainings would be targeted to BSOs, laboratory staff, PHL trainers and sentinel clinical laboratory staff. Individual responses are on file with APHL.

20. Besides trainings, what specific biosafety and/or biosecurity guidance documents/tools or other resources do you need?

    Responses for the types of biosafety and/or biosecurity tools needed included standardized risk assessment tools and templates, reference guides for biosafety procedures, guidelines for occupational health programs and reference material for packaging and shipping agents. Individual responses are on file with APHL.

Association of Public Health Laboratories

The Association of Public Health Laboratories (APHL) works to strengthen laboratory systems serving the public's health in the US and globally. APHL's member laboratories protect the public's health by monitoring and detecting infectious and foodborne diseases, environmental contaminants, terrorist agents, genetic disorders in newborns and other diverse health threats.

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