



Laboratory Preparedness for Future Responses

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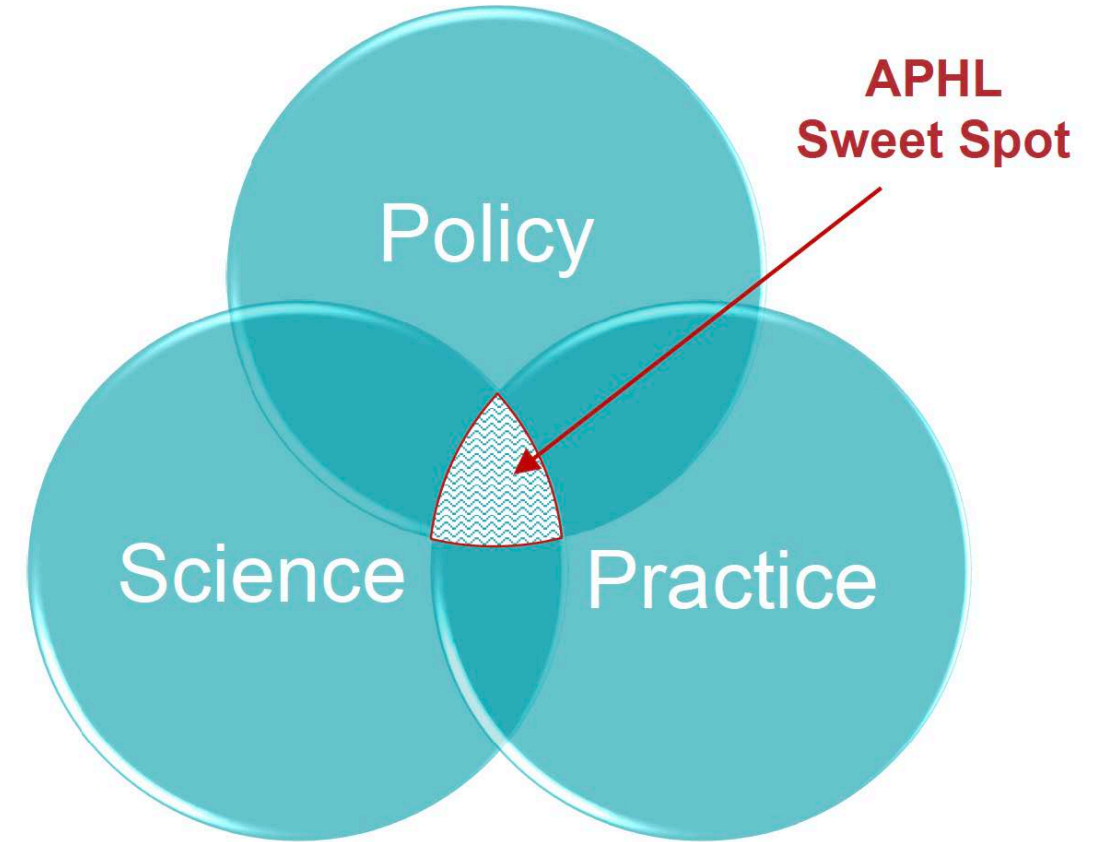
About APHL

Vision

A healthier world through quality laboratory systems.

Mission

Shape national and global health outcomes by promoting the value and contribution of public health laboratories and continuously improving the public health laboratory system and practice.



Organizational Values



Community: We actively foster meaningful connections and belonging among members and partners to promote collaboration, growth and diversity of thought that maximizes our contributions to advance public health.



Diversity, Equity, Inclusion and Accessibility: We embrace, promote and model a culture of diversity, equity, inclusion, and accessibility (DEIA) and recognize it as essential to the work we perform and the communities we serve.



Innovation: We meet the diverse and ever-changing public health landscape through forward-thinking and adaptive leadership.



Scientific and Professional Integrity: We are a trusted leader in public health, striving for continuous improvement and the highest level of ethics and honesty in laboratory science and practice.

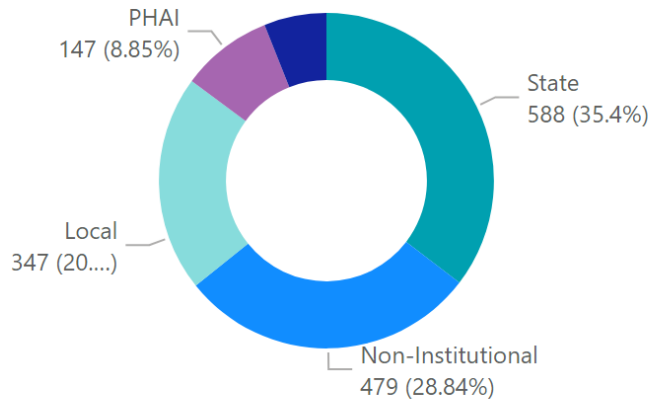
APHL Membership



Reporting Month

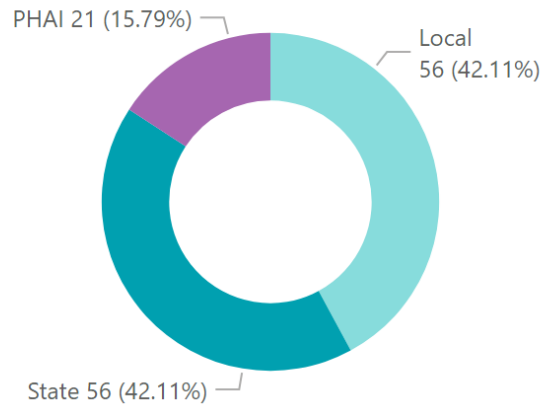
Dec-23 ▼

Member Count by Category



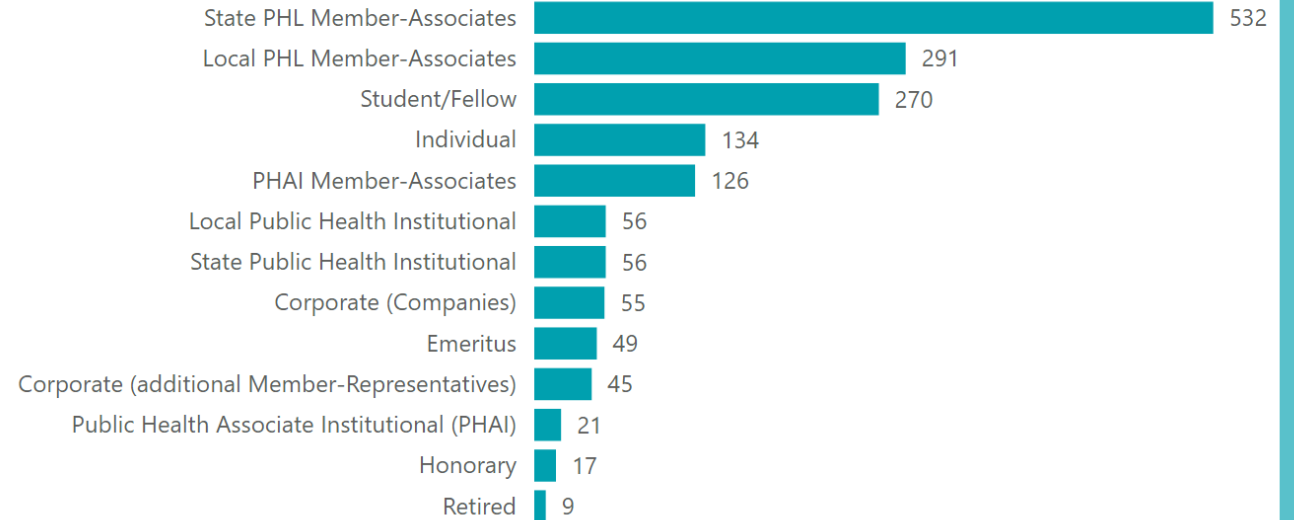
1661
Total Members

Member Laboratories



133
Total Laboratories

APHL Membership



Notable Membership Changes

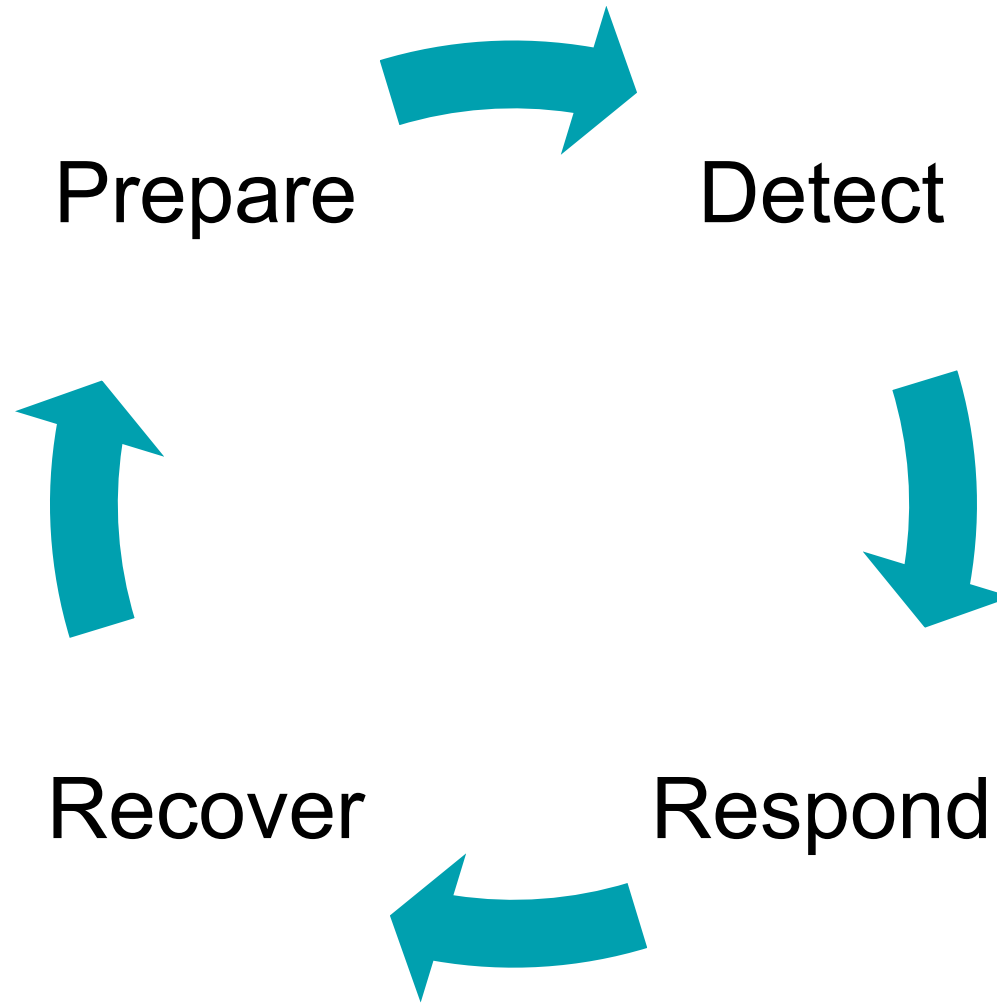
- New Laboratory Representatives**
Sara Vetter - MN PHL



Laboratory Preparedness and Response



Laboratory Preparedness and Response Cycle



Prepare



Networks, Partnerships and Communications



Laboratory Specific Policies and Procedures e.g., notification, safety, biosafety and biosecurity



Planning: Continuity of Operations Plan, Surge Capacity Plan



Systems and Infrastructure: Data Reporting, Equipment and Maintenance Contracts, Inventory/Supply Chain



Workforce



Regulatory Compliance: Tests In Place and Ongoing Test Development



Specimen Collection and Transport



Training, Drills and Exercises

Clinical Laboratory Partnerships



Resourcing Laboratories to Succeed

Recognize. Rule-Out. Refer.

Biothreat Agent Bench Cards for the Sentinel Laboratory



For questions, contact your designated LRN Reference Level Laboratory:

(LRN Reference Level Laboratory Name)

(Phone Number)

BIOTHREAT AGENTS

ANTHRAX <i>Bacillus anthracis</i>	BRUCELLOSIS <i>Brucella</i> spp.	GLANDERS <i>Bordetella pertussis</i>	MELIOIDOSIS <i>Burkholderia pseudomallei</i>	TULAREMIA <i>Francisella tularensis</i>	PLAQUE <i>Yersinia pestis</i>
<ul style="list-style-type: none"> Appear from culture only (U.S. 5-year OIA permit) Smear of dried specimens: <ul style="list-style-type: none"> Wet mount (20-40 cells) Gram stain: no action Microscopic (20-40 cells) Long chains, no capsules Spores in older cultures (not tested for reference; no heating with test) Grow well on MAC and LMG Characteristics: colonies (2-10 μm) on MAC and LMG (24h) Fast or slightly slower with capsule (RPM) that have coarse granules Non-motile, no flagella Non-toxic 	<ul style="list-style-type: none"> Very slowly growing, non-capsulated, Gram-negative, coccobacilli (0.5-1 μm x 0.5-1 μm) Require oxygen at 36°C, and 5-10% CO₂ for best growth Non-motile Non-toxic Biologic agents on BSL and CDC/NIH sites for research to serve at 40°C No growth on MAC or LMG Colony: mucoid, pink, granular (Bordetella-like) without capsule Wet's factor (soluble test): negative (not required) Non-viable (pathogen inactivation) by autoclave (121°C for 15 min) Fast or slightly slower with capsule (RPM) that have coarse granules Non-motile, no flagella Non-toxic 	<ul style="list-style-type: none"> Irregularly shaped, or slightly curved, Gram-negative, coccobacilli (0.5-1 μm x 0.5-1 μm) Capable of forming spores (U.S. 5-year OIA permit) Cells elongated in older, dried cultures, or (Gram stain) form beaded chains Non-motile Non-toxic Biologic agents on BSL and CDC/NIH sites for research to serve at 40°C Colony: mucoid Colony: mucoid, pink, granular (Bordetella-like) without capsule Wet's factor (soluble test): negative (not required) Non-viable (pathogen inactivation) by autoclave (121°C for 15 min) Fast or slightly slower with capsule (RPM) that have coarse granules Non-motile, no flagella Non-toxic 	<ul style="list-style-type: none"> Strains of multiple complex (over 22 OIA types in OIA permit) Capable of forming spores (U.S. 5-year OIA permit) Non-motile, no flagella Non-toxic Biologic agents on BSL and CDC/NIH sites for research to serve at 40°C Colony: mucoid Colony: mucoid, pink, granular (Bordetella-like) without capsule Wet's factor (soluble test): negative (not required) Non-viable (pathogen inactivation) by autoclave (121°C for 15 min) Fast or slightly slower with capsule (RPM) that have coarse granules Non-motile, no flagella Non-toxic 	<ul style="list-style-type: none"> Very slow growing coccobacilli (0.5-1 μm x 0.5-1 μm) Fast growing with capsule (RPM) that have coarse granules Non-motile, no flagella Non-toxic Biologic agents on BSL and CDC/NIH sites for research to serve at 40°C Colony: mucoid Colony: mucoid, pink, granular (Bordetella-like) without capsule Wet's factor (soluble test): negative (not required) Non-viable (pathogen inactivation) by autoclave (121°C for 15 min) Fast or slightly slower with capsule (RPM) that have coarse granules Non-motile, no flagella Non-toxic 	<ul style="list-style-type: none"> Fast, Gram-negative coccobacilli (0.5-1 μm x 0.5-1 μm) Fast growing with capsule (RPM) that have coarse granules Non-motile, no flagella Non-toxic Biologic agents on BSL and CDC/NIH sites for research to serve at 40°C Colony: mucoid Colony: mucoid, pink, granular (Bordetella-like) without capsule Wet's factor (soluble test): negative (not required) Non-viable (pathogen inactivation) by autoclave (121°C for 15 min) Fast or slightly slower with capsule (RPM) that have coarse granules Non-motile, no flagella Non-toxic

FOLLOW ALL LABORATORY AND BIOSAFETY PROCEDURES TO RECOGNIZE AGENTS OF BIOTERRORISM. YOU ARE THE FIRST LINE OF DEFENSE – REFER TO CURRENT ASM SENTINEL LAB PROTOCOLS

- Clinical Laboratory Preparedness and Response Guide (Blue Book)
- Laboratory Response Network (LRN) Sentinel Level Clinical Laboratory Guidelines - American Society for Microbiology (ASM)
- MOU with College of American Pathologists and CDC – Laboratory Preparedness Exercise (LPX)
- MOU with CDC and Other Partners for Diagnostic Surge Testing Capacity for Public Health Emergencies



Detect and Respond



Incident Management System (Incident Command System)



Notifications



Ongoing Communications



Quality Testing and Regulatory Compliance



Timely Reporting



Inventory/Supply Chain



Workforce: supportive environment for workforce; ensure there is staff rotation to avoid burnout; maintain a positive work environment with accessible leadership

Major Events

2001: Anthrax

2003: Monkeypox, Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV); Ricin; Tularemia; Anthrax; Bovine Spongiform Encephalopathy BSE (Mad Cow Disease)

2004: Democratic and Republican National Conventions; West Nile Virus

2005: Marburg Virus; Hurricane Katrina

2006: Mumps; *E. coli* Outbreaks; Botulism

2007: XDR/MDR Tuberculosis

2008: Salmonella and *E. coli* Outbreaks

2009: H1N1 Influenza Pandemic; Salmonella Typhimurium Outbreak; Presidential Inauguration

2010: New Hampshire Anthrax; Deepwater Horizon Oil Spill

2011: Japan Earthquake and Tsunami (Japan Nuclear Crisis)

2012: Polio; Multistate Meningitis Outbreak; Hurricane Sandy

2013: Avian Influenza H7N9 Response; Middle East Respiratory Syndrome Coronavirus (MERS-CoV), Multistate Cyclospora Outbreak, Polio

2014: MERS-CoV; Ebola Response; Polio Outbreak

2015: DoD Sample Investigation

2016: Zika Virus Response; Flint, Michigan Water Contamination Response

2017: Hurricanes Harvey, Irma, and Maria

2019: E-cigarette or Vaping use-Associated Lung Injury (EVALI)

2020: SARS-CoV-2 Pandemic

2021: SARS-CoV-2 Pandemic

2022: Multi-National Monkeypox Virus

Recover



Acknowledge staff



Transition to routine testing



Have a plan for active and passive surveillance (engage public health)



Review and manage specimen/sample inventory



After Action Review

After Action Review (AAR)

- [Research Full Report: Identifying Operational Challenges and Solutions During the COVID-19 Response Among US Public Health Laboratories - PMC \(nih.gov\)](#)
- [Laboratory Response to Pandemic Threats: Challenges, Needs, and Solutions | Health Security \(liebertpub.com\)](#)
- [Creating a Blueprint for the Future: Lessons Learned From Public Health Laboratories in the COVID-19 Response - PubMed \(nih.gov\)](#)
- [APHL COVID-19 Newborn Screening Impact Survey Report](#)
- **AAR: APHL and RAND Corporation will publish a more comprehensive AAR**



Future State

Implement Lessons Learned



Implement Lessons Learned



Recognize diversity in testing options
e.g., at home testing



Review and update policies;
contribute to improving regulations



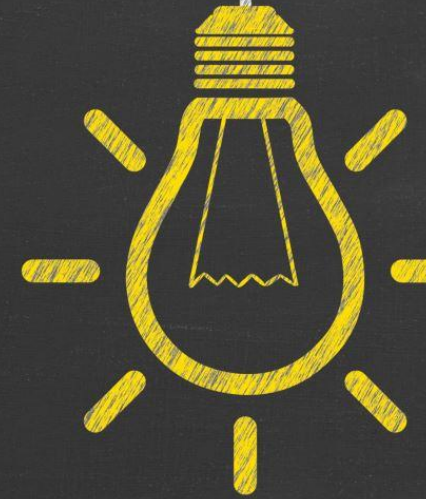
Maintain partnerships in peacetime

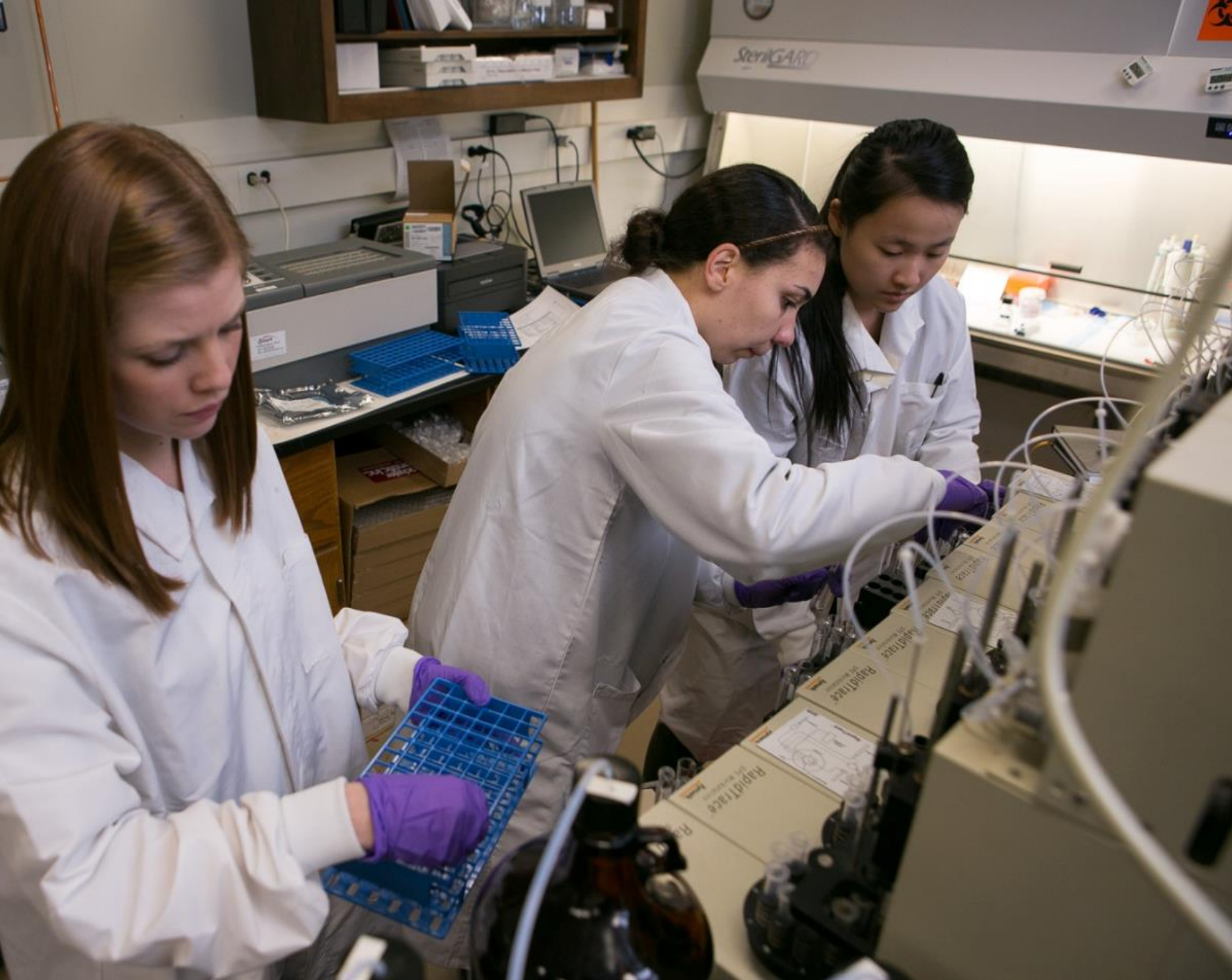


Inform and educate leadership –
private sector, governmental



Invest in Workforce





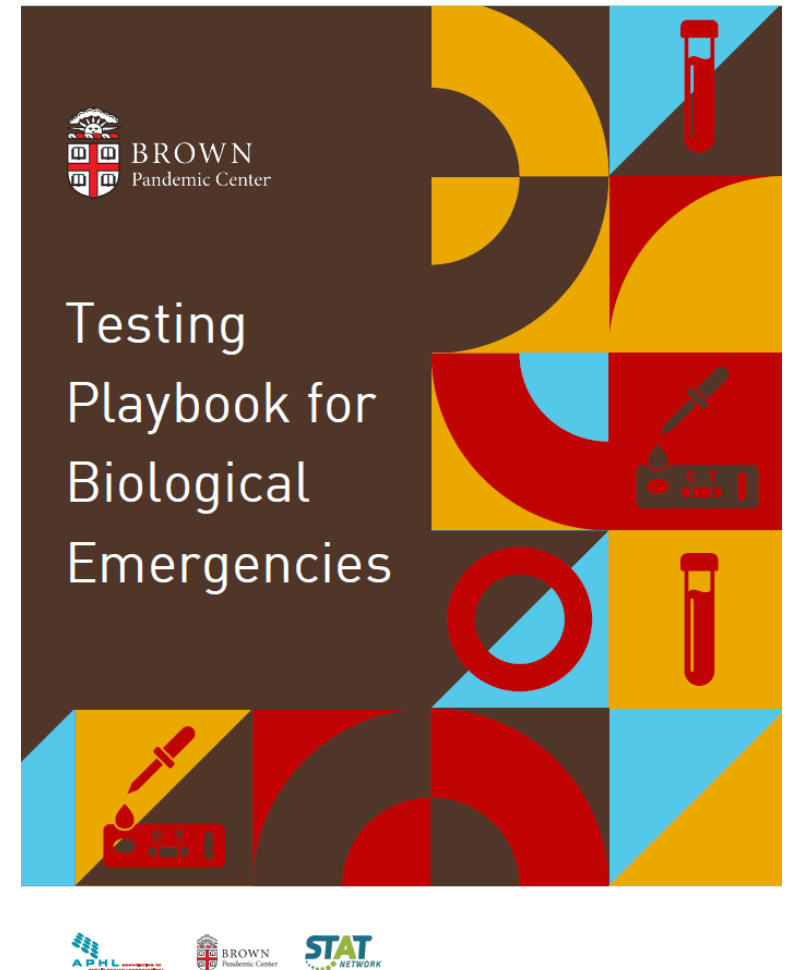
Workforce

Invest in recruitment
and retention

[Laboratory
Fellowships
\(aphl.org\)](#)

The Playbook

- [Better Testing Now](#)
- [Testing-Playbook-Biological-Emergencies.pdf \(aphl.org\)](#)
- The goal of the Testing Playbook is to provide US decision-makers at the federal level with a clear and evidence-based guide for making rapid and effective decisions regarding the development, implementation, and scale-up of diagnostic testing in an infectious disease emergency.



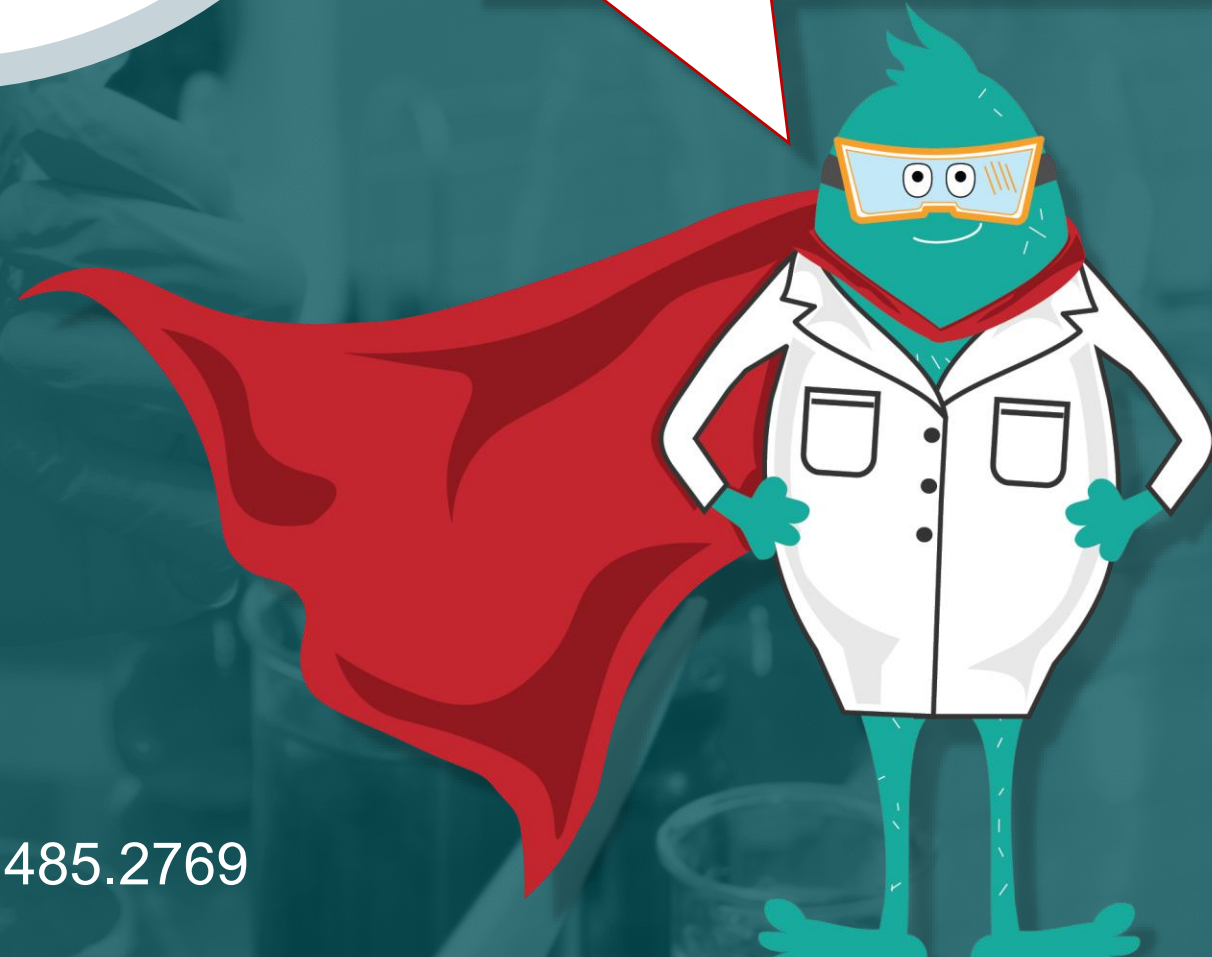
Resources

- [CDC's Laboratory Outreach Communication System \(LOCS\) | CDC](#)
- [Emergency Use Authorization | FDA](#)
- [Continuity of Operations Plan Template](#)
- [GP36AE | Planning for Laboratory Operations During a Disaster, 1st Edition \(clsi.org\)](#)
- [Biothreat Response: Sentinel Laboratory Training Toolbox \(aphl.org\)](#)
- [Biosafety and Biosecurity Resources \(aphl.org\)](#)
- [Grow Your Own laboratory Team \(ascp.org\)](#)



Thank
You!

Questions?



Contact:

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