

Partners in Preparedness and Response

Connecting Laboratories and the First Responder Community



SCENARIO

Imagine this: it is 10:00 am on Monday morning and the phone rings calling your team out to a potentially hazardous situation. The initial report is that a large box left outside of a major airport is leaking an unknown substance. The team arrives, puts on protective gear, creates a perimeter and decides what to do next. Upon initial inspection, the package seems out of place and a substantial amount of thick liquid is oozing from the bottom. No one has reported illness yet, but the fumes are beginning to be quite noticeable. It is quickly determined that testing needs to be done. Field Device X is brought out of the vehicle, started up according to protocol and used to test the leaking material. The first test indicates a weak positive. It is rerun, and the sample is negative. Three more successive tests conclude negative, positive, positive. At this point, the terminal has been shut down for 30 minutes and a decision needs to be made about what to do next. Thousands of travelers' safety and schedules depend on the decision that is made from those tests.

WHAT DO YOU DO?

This scenario may seem unlikely, but as demonstrated during the 1995 Tokyo Sarin Gas Attack or the 2003 Miami International Airport scare, the next event is only limited by what is possible. Often in situations such as these, the duties of the public health laboratories (PHLs) and first responders become blurred and each entity is depending on one another. It is important to focus on what truly matters, which is the safety of the public.



Shared Issues with Field Devices and Testing

Even though laboratorians, police officers, fire fighters and hazmat technicians wear different uniforms, they all share the common goal of protecting the public and, thus, have similar concerns, including:

- Safety of first responders and laboratorians
- Integrity of the results on which important decisions are made
- Need for standardized training and competency assessments
- Need for an approved list of evaluated field devices for purchase
- Identification of a lead federal agency in charge of regulating the devices, ensuring the delivery of training and implementation of ongoing competency assessments, and providing grants to purchase equipment

Without validated testing equipment, true sample characterization and potential hazards can't be accurately determined. This means that both groups are unnecessarily exposed to risk each time field devices and assays are used.

Even if field devices and assays are accurate in controlled environments, they may not be accurate in the real world where equipment is exposed to temperature extremes, unpredictable weather conditions and often is jostled around in the back of a vehicle. Testing samples in the field with equipment that are accurate only under optimal lab conditions opens up a myriad of issues and could lead to false negatives or false positives. Any incorrect results could also influence the way that samples are handled once they reach the laboratory.

Even if the field testing equipment is highly accurate and the results reproducible, it is still only one component of the bigger picture and means little without the appropriate training. Without training on the equipment, end users will not know how to properly run samples through the protocol or understand how to troubleshoot problems in the field. This is analogous to using something as familiar as a global positioning system (GPS) to find a gas station. Even though most people have used GPS devices, they won't necessarily know how to use a device that is new to them. ***Why would it be any easier to use highly technical screening equipment?***

The same can be said if there aren't standardized competency assessments to ensure users are proficient on field devices. Once the address is entered, the GPS unit will usually take the user to the desired endpoint, but if the maps aren't updated, quicker routes will be missed or, worse, the destination will not be found.

Many hazmat technicians and first responder groups experience increased turnover rates because of factors such as a high volunteer participation rate.

As such, competency assessments and training must be standard and ongoing to keep users comfortable and familiar with their devices. A police officer would not be given a new firearm without time to become familiar with its operation; the same should apply to equipment for first responders.

Closing an airport, subway, or hospital because of a false positive will create unnecessary panic among commuters. Leaving these facilities open because of a false negative could have even more dire consequences—widespread illness or loss of life. Both scenarios contribute to reduced confidence in first responders and others tasked with protecting the nation.

None of these concerns can be properly addressed until there is a single lead federal agency in charge of regulating field devices, providing grants to purchase approved field devices, ensuring the delivery of training and implementation of ongoing competency assessments. This agency can also help to assure coordination and collaboration between the first responder and laboratory communities.

Fortunately, the first responder and laboratory communities are beginning to work together. The Association of Public Health Laboratories (APHL), the organization representing governmental health laboratories, aims to help align these efforts to achieve common goals and stronger collaboration.

How is APHL Involved in These Issues?

At APHL, the Public Health Preparedness and Response (PHPR) Program is the group that primarily interacts with the local, state and federal partners working to address the field screening needs of laboratorians and first responders. Specifically, the PHPR Program will:

- Participate on federally-led workgroups to establish standards for validation of field devices and handheld assays;
- Work closely with representatives from multiple federal agencies to ensure that all partners are informed of laboratory needs from the first responders;
- Inform policymakers and comment on proposed legislation;
- Represent the PHL community by presenting to and meeting with first responder groups;
- Use the extensive APHL membership and committee structure as subject matter experts;
- Promote the need for laboratorians and first responders to serve on established and proposed federally-led workgroups;
- Bridge communication within the various first responder groups and all other important stakeholder organizations.

APHL has acted as, and will continue to be, the organization that brings the local, state and federal partners together. At the most basic level, this includes introducing colleagues to one another, and at the higher levels, influencing national policies. ***The ultimate goal for this vital collaboration is to assure that first responders, laboratorians and the public are protected from all-hazard threats.*** Quality field devices, assays and training decreases the risk that first responders are exposed to and ensures that fewer mischaracterized substances reach the laboratory. This enhances the first responders' and laboratories' ability to protect the public at large.

Potential Solutions for PHLs and the First Responder Community

First and foremost, direct communication between PHLs and first responders is needed. If the first conversation between the two groups is occurring during an event, then the chances of a mistake happening increases dramatically. The laboratory is a resource for scientific information, and the first responders provide a true field account that will only enhance confirmatory laboratory testing.

With both communities working towards the same goals, the prospect of achieving improvements to both safety and quality grows exponentially.

The following are potential solutions:

- Leadership from both communities should collaborate on communication to policymakers of the current deficiencies in the world of field screening devices and handheld assays.
- A lead agency must establish uniform federal guidelines for the performance standardization and validation of all screening devices, kits and assays for use in the field by first responders to detect hazardous biological and chemical agents.
- When standard parameters are established, each screening device and kit should be placed on a federally-approved list.
- All validation studies should involve PHLs that are members of the CDC's Laboratory Response Network (LRN) at the reference and chemical levels and relevant first responder groups.
- With appropriate funding, stakeholder organizations should partner to develop and implement a national training, certification and proficiency testing program for first responders.



Conclusion

At APHL, we are dedicated to serving the needs of our membership and working to safeguard the public's health. Field screening is a topic that touches our membership nationwide and is an important priority for the Association. While we continue to contribute to federal processes underway to develop guidance and regulations, APHL wishes to be proactive and work together with the first responder community to develop a system that best fits the needs of both parties and to address the current gaps and deliver solutions.



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