DHS Science and Technology Directorate

S&T Standards Protecting the Nation Against White Powder Attacks

Responding to the 2001 anthrax attacks

Ten years ago, the first anthrax attacks occurred at the office of the former Senator Tom Daschle and left his staff and office in a state of confusion on how to respond to the emergency and get treatment for those who were exposed. It is the actions of our local first responders that are critical in providing an effective response during a suspected biological attack. The Department of Homeland Security (DHS) Science and Technology Directorate (S&T) in partnership with the National Institute of Standards and Technology, the Environmental Protection Agency, the Federal Bureau of Investigation, and the Centers for Disease Control and Prevention (CDC) has developed national operational guidance and sample collection protocols to effectively coordinate the biothreat response activities of local hazmat and law enforcement, emergency response officials, on-scene coordinators, environmental and hazardous materials response teams, laboratories, and public health officials.

National biothreat response capability

A successful response capability requires the development of the following five critical elements to enable the proper coordination and communication at all levels of response and to enable users to have confidence in the test results obtained:

1. A concept of operations (CONOPs) to support the use of fielded assays and the coordination of response among the key stakeholders in the jurisdiction;
2. Training and certification of end-users;
3. Proficiency testing in the hands of the end-user in the field;
4. Sample collection and handling standards; and
5. Assays that have been properly tested by a qualified third party and certified to meet or exceed appropriately recognized national voluntary consensus standards for performance.

Enabling effective biothreat response coordination, communication and test result confidence

In response to the first and fourth critical element, DHS S&T has worked with the responder communities to establish two American Society for Testing and Materials (ASTM) International standards:

- ASTM E2770-10, operational guidelines (i.e., CONOPs) to enhance the communication and coordination among the response community for initially responding to suspected biothreats, and
- ASTM E2458-10, a sample collection and handling standard for use by first responders to collect and send the majority of a suspected biothreat sample to a member of the CDC's Laboratory Response Network for rapid presumptive and confirmatory testing.

S&T is addressing the second element by working with other DHS components (i.e., the Federal Emergency Management Agency and the Office of Health Affairs) to coordinate training curricula and to develop new approaches to training that encourages capability building at the jurisdictional level. Training for first responders will define decision making for sample collection, collection approaches, and the proper use with biological detection tools.

Progress has been made on the fifth critical element through the development of two AOAC International standards that define the minimum performance requirements for assays that evaluate suspicious powders in the field, and two ASTM International Standards that define the standard practice for measuring and characterizing suspicious powders:

- AOAC SMPR 2010.004, performance requirements for the detection of Anthrax spores in visible powders,
- AOAC SMPR 2010.005, performance requirements for the detection of Ricin in visible powders,
- ASTM E2805, standard practice for the measurement of the biological activity of Ricin, and
- ASTM E2800, standards practice for the characterization of *Bacillus* spore suspensions for reference materials.

With the development of these national consensus standards S&T is enabling law enforcement, Hazmat and public health officials at all levels of government to effectively coordinate biothreat detection activities, enhance communication among members of the response community, ensure the safety of the public, and maintain a secure chain of custody necessary for the prosecution of the perpetrators.

Homeland Security
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To learn more about the Biological Countermeasures Standards Development Program, contact Philip Mattson, Deputy Director, DHS S&T ASOA/Office of Standards, at Philip.Mattson@hq.dhs.gov

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