

# Why a Chemical Threat Level-2 Lab is Important

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APHL sometimes hears about state and local health agencies considering dropping their LRN<sup>1</sup> chemical threat laboratory's capabilities from a level 2 to a level 3. This document lists considerations that decision makers should include in their deliberations. It is intended for use by APHL members when participating in discussions at the state level regarding Public Health Emergency Preparedness policy and funds.

## Keeping Local Control of Response

If you've been involved in an emergency response, you know that it remains largely a local function. History teaches that neighboring laboratories may be too busy with their own sample analysis to help other jurisdictions<sup>2</sup>.

Yet, when faced with decisions to evacuate, decontaminate, quarantine or isolate, decision makers need answers on their terms. Would they want to rely on a laboratory outside their jurisdiction for testing? If a non-local laboratory accepted samples from many different jurisdictions or had their own to run, yours may not take precedence.

Level 2 laboratories provide rapid & effective analysis of clinical specimens for those chemical agents likely to be used in terrorism. Timely laboratory analysis helps to guide emergency medical care, public health management, and follow-up by identifying the chemical agent used, determining who has been exposed, and how much exposure each person has had.

These laboratories remain prepared 24/7 to run large amounts of samples for any reason. Constant proficiency testing, maintenance, training, planning and exercising creates a unique resource, not only beneficial during terrorist incidents, but also during everyday events, including white powder incidents which happen frequently all across the United States.

Level 2 laboratories remain critical, not just to local response, but also to national response. CDC and the ten Level 1 laboratories may not be able to handle the entire testing load forecasted in disaster scenarios. In addition, a level 2 laboratory may find the threat in the first place, thus triggering a larger response at the regional or national level. Level 2 laboratories often boast strong connections to law enforcement, hazardous-material teams, and civil support teams, which call on these laboratories to help them assess threats, not only to public health but also to public safety.

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<sup>1</sup> In 1999, APHL, CDC and the Federal Bureau of Investigation formed the Laboratory Response Network (LRN) to ensure national capability for identifying and characterizing potential agents of biological and chemical terrorism in clinical specimens.

<sup>2</sup> Novel H1N1 influenza serves as the most recent example where laboratories asking for help from colleagues were not always able to get it.

## Benefiting your Constituents

Having such an advanced chemistry laboratory within your jurisdiction offers important benefits beyond emergency preparedness and response. For instance, some level 2 laboratories have done the following:

- Responded to events, including natural disasters such as floods, where water testing was required for effective public health interventions.
- Tested umbilical cord blood and mother's blood at time of delivery for lead, cadmium, and mercury<sup>3</sup>.
- Began assessing children's historical exposure to metals using archived blood samples of 1 and 2 year-olds.
- Supported drug testing programs. The Vermont Department of Health conducts urine drug testing for Corrections, Probation and Parole compliance.
- Developed drinking water emergency response kits to be used in case of incident at a public water supply.
- Responded to environmental concerns, such as blue-green algae toxins<sup>4</sup>.
- Run tests for their medical examiner (e.g. looking for cadmium in blood).
- Helped a local university and a private laboratory to test water samples from Bangladesh for As, Ba, Pb, U, Th, and Mn<sup>5</sup>.
- Worked with local health partners to identify a contaminant in toxic waste, leading to the closure of freeways, roads, and the evacuation of thousands of residents from their home<sup>6</sup>.
- Assisted environmental epidemiologists with testing of soil for Thallium contamination to calm fears among residents related to water contamination.
- Conducted emergency testing in food for trace chemicals or large chemicals.
- Worked with poison control centers to detect arsenic in coffee.

## Importance of Belonging to the Network

The systems approach to the Laboratory Response Network leads to increased efficiency and communities of capability. The network of level 1 and 2 laboratories contains well-established lines of communication among public health laboratories all over the country, creating an astonishingly powerful brain trust in emergency response chemistry for clinical, food, and environmental problems.

These connections helped drive the response to the Gulf Coast oil spill – workgroups dedicated to testing issues coordinated work, insights, and recommendations, all of which influenced the final methods chosen by the affected states and by FDA. As demonstrated during this and other responses, strong networking also fosters communications with federal counterparts, not only FDA and CDC, but also EPA, FBI, DoE, and DoD.

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<sup>3</sup> Lab Matters, Fall 2009, Issue 4.

<sup>4</sup> Vermont Department of Health. *Blue-green Algae: Guidance for Vermont Communities*, [http://healthvermont.gov/enviro/bg\\_algae/documents/BGA\\_guide.pdf](http://healthvermont.gov/enviro/bg_algae/documents/BGA_guide.pdf).

<sup>5</sup> Thomas Bacquart et.al, (2002). A survey of arsenic, manganese, boron, thorium and other toxic metals in the ground water of West Bengal, India neighborhood. *Metallomics*. <http://www.aphl.org/aphlprograms/eh/Documents/Bacquart%20et%20al.pdf>

<sup>6</sup> Deseret Morning News; Wednesday, March 09, 2005

Most importantly, networked laboratories provide backup and overflow in the event of an emergency, so that every laboratory does not need to build its own surge capacity. Training in emergency response (e.g. chain-of-custody procedures, Incident Command System) assists in any response situation, including radiological events such as Fukushima, drinking water tampering incidents or natural disasters.

For instance, in Utah the capabilities developed as a Level 2 Lab in the LRN-C enabled the lab and others to receive additional funding to study important environmental health questions in their respective states. These states received additional funds from respective state Environmental Public Health Tracking programs to study prevalence of heavy metals among newborn children and fetal exposure .

What's your story? Contact us with your Level 2 Lab story today! Email or call Surili Sutaria at [surili.sutaria@aphl.org](mailto:surili.sutaria@aphl.org) or 240-485-2784.