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The Florida Lab Link

"A Biological and Chemical Preparedness Newsletter"

Laboratory Response Network—Chemical Threats

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Laboratory Response Network-Chemical

In the United States (US) and one US territory, there are 54 laboratories in the Laboratory Response Network-Chemical (LRN-C) that provide emergency response capabilities locally, nationally or both. A designation of Level 1, 2, or 3 identifies laboratory capabilities and defines network participation.

Level 3 LRN-C laboratories work with the health and medical community to maintain competency by providing training in the collection, storage and shipment of clinical specimens obtained from individuals following a chemical exposure event. There are 10 laboratories specifically designated as Level 3, but all 54 LRN-C laboratories maintain this capacity.

There are 34 Level 2 laboratories. Chemists in these laboratories are trained to detect exposure to several toxic chemical agents such as cyanide, nerve agents and toxic metals.

There are 10 Level 1 laboratories. In addition to being able to test for the same agents as Level 2 laboratories, Level 1 laboratories can also detect exposure to an expanded list of chemicals such as mustard agents, nerve

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agents, plant toxins and industrial chemicals. These laboratories provide surge capacity for the Centers for Disease Control and Prevention (CDC) using high-throughput analysis and expand the CDC's ability to analyze large numbers of patient samples following a large-scale exposure. The list of test methods for new chemical agents increases every year as new methods are released from the CDC.[1]

Florida's Bureau of Public Health Laboratories-Chemical Threat Preparedness Program

In Florida, the Bureau of Public Health Laboratories (BPHL)-Chemical Threat (CT) Preparedness Program consists of two LRN-C Laboratories. There is a Level 1 laboratory located in Jacksonville and a Level 3 laboratory located in Tampa.

The Jacksonville CT laboratory is equipped with state of the art instrumentation used for chemical analysis, which include gas chromatography-mass spectrometry (GC-MS), liquid chromatography tandem mass spectrometry (LC-MS/MS) and inductively coupled plasma mass spectrometry (ICP-MS).

The laboratory maintains operational capacity by performing monthly proficiency testing and by participation in CDC sponsored exercises. Each year the CDC sends mock samples to be tested to assess the surge capacity of its Level 1 laboratories. Recently, the Jacksonville CT laboratory received 500 specimens to be tested for tetramine, a potent poison banned for distribution in the US, but used as a rodenticide in other countries. Testing occurred continuously over several days to ensure the results generated were reported back quickly and accurately to the CDC.

The Decon team preparing for action at Nicklaus Children's Hospital in Miami as part of the 2019 FL CTEE

Tampa and Jacksonville laboratories also participate in the CDC's annual Specimen Packaging and Shipping Exercise (SPaSE) which is designed to test the laboratories' ability to correctly package and ship clinical specimens to the CDC in the event of a widespread chemical exposure.

Hospitals, county health departments, state and federal partners are invited to

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participate in BPHL sponsored annual tabletop emergency exercises. In February, the BPHL-Tampa CT coordinator hosted the 2019 Chemical Threat Exposure Exercise (CTEE).

This statewide multi-agency event helps facilities assess their response to chemical emergencies by identifying areas of improvement; it also strengthens the working relationship with partners in the medical community and develops rules for information sharing during a chemical threat event.

During the CTEE, a variety of systems were tested including incident command structure, hospital decontamination, specimen collection, packaging and shipping. Additionally, there was a Poison Information Control phone drill and Department of Health notification.

The new LC/Q-ToF instrument used for opioid analysis in the CT Lab

In response to the opioid crisis, the CDC has requested that Level 1 laboratories, including Jacksonville, implement new test methods and instrumentation. A Liquid Chromatograph/Quadrupole Time of Flight (LC/Q-ToF) mass analyzer is the newest addition to the roster of state-of-the-art instruments in the Chemical Threat laboratory to support testing for fentanyl.

Fentanyl is a synthetic opioid that is 80-100 times more potent than morphine, a natural derivative of the opium poppy plant. Pharmaceutical fentanyl was developed for the pain management of cancer patients but its opioid properties are in high demand. Fentanyl is added to heroin to increase its potency, or disguised as highly potent heroin. Many drug abusers believe they are buying heroin but they are actually purchasing fentanyl, which often results in overdose death.[2] The increased mass accuracy of the LC/Q-ToF over the LC Triple Quad Mass spectrometers will be utilized in screening, identification and quantification studies of opioid compounds.

Florida has two chemical threat (CT) coordinators who provide training to county health departments and hospitals in the collection, storage and shipment of clinical specimens following a chemical exposure. This training is provided on-site at no cost to participating facilities. If you would like to schedule training or would like to be notified for future exercises, please contact the CT coordinator in your area (see the Bureau of Public Health Laboratories Directory for contact information).

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References.

1. Centers for Disease Control and Prevention (Apr. 10, 2019). *Laboratory Response Network for Chemical Threats.* Retrieved from https://emergency.cdc.gov/lrn/chemical.asp.
2. United States Drug Enforcement Administration (DEA), Drug Facts. Fentanyl. Retrieved from: https://www.dea.gov/factsheets/fentanyl

LABORATORY RESPONSE NETWORK (LRN) SENTINEL LEVEL CLINICAL LABORATORY PROTOCOLS

The American Society for Microbiology (ASM) website containing the Sentinel Level Clinical Protocols has moved. The updated protocols designed to offer Laboratory Response Network (LRN) Sentinel Level Clinical Laboratories standardized, practical methods and techniques to rule out microorganisms suspected as agents of bioterrorism, or to refer specimens to public health laboratories for confirmation can be found at: https://www.asm.org/Articles/Policy/Laboratory-Response-Network-LRN-Sentinel-Level-C.

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Editor - Betty Wheeler

Have You updated your facility contact information?

Hurricane season began June 1 and will run through November 30. The past couple of storms have left a lasting impression on Florida even if we all were not personally affected. Have your facility's capabilities been affected? Has your facility moved to a different location or closed because of a storm? Has your facility changed its name? Did you change your email address or phone number? As we take time to prepare our homes, facilities and communities for this year's storms, please take a few minutes to update your facility's emergency preparedness plan. Look in your email for the form to update your facility contact information and provide your facility's current contact information to the Sentinel Laboratory database. Please contact Betty Wheeler at 904-791-1568 (Betty.Wheeler@FLhealth.gov) if you have any questions or concerns.

2019 College of American Pathologists' Laboratory Preparedness Exercise (LPX)

The second mailing of the 2019 College of American Pathologists' (CAP) Laboratory Preparedness Exercise will be September 9, 2019. Thank you for devoting your time, energy, and other resources to the LPX. We know that it is often difficult to fit into your already busy schedule but we appreciate your willingness to enhance not only your own facility's laboratory preparedness, but the overall preparedness of the state of Florida.

If you are not currently participating but would like to, or wish to cancel your participation, please contact Betty Wheeler at **Betty.Wheeler@FLhealth.gov** for more information. If your facility currently pays for a subscription to the LPX survey, please contact CAP directly to make any changes to your order. If you have any questions or require any changes in your participation, please don't hesitate to ask us.

Chemical Threat (CT) Preparedness Training

The CT laboratory coordinators continue to reach out to the health and medical community by offering training for CT preparedness at hospitals and county health departments (CHDs). This training covers chemical terrorism awareness and the collection of clinical specimens after a chemical terrorism event. Hospital and CHD staff play an important role in the response to a chemical exposure event when clinical specimens are collected for analysis. For your convenience and to increase participation, this training can be presented at your facility. Each course lasts approximately one hour with one 15-minute break between courses. Training manuals, "hands-on" exercise materials, and CT preparedness kits will be provided. This training is recommended for physicians, nurses, epidemiologists, emergency department personnel, phlebotomists, hospital and health department laboratory personnel and others who may collect clinical specimens. Contact the CT laboratory coordinators in your region for more information (see the Bureau of Public Health Laboratories Directory for contact information).

Laboratory Response Network (LRN) Training—Biological Defense

The Bureau of Public Health Laboratories is currently offering an LRN sentinel laboratory training course at your facility. This training follows the American Society for Microbiology (ASM) Sentinel Level Clinical Laboratory Protocols for Suspected Biological Threat Agents and Emerging Infectious Diseases. Scheduling the training at your facility is a relatively easy process. Determine when you would like to have the training and how many people will be attending. A time will be set up that is convenient for all. The training materials are provided as well as the biodefense reference manuals for your laboratory.

The training syllabus includes: an overview of the LRN; biosafety risk assessment and biosafety for the clinical laboratory; the ASM protocols for ruling out potential bioterrorism agents and how to refer a sample to the state LRN Public Health Reference Laboratory when a bioterrorism agent cannot be ruled out; and an introduction to the CDC Select Agent Program.

Please contact Betty Wheeler at 904-791-1568 (Betty.Wheeler@FLhealth.gov) to schedule a class for your facility.

Florida Department of Health
Bureau of Public Health Laboratories-Directory

NAME	TITLE	PHONE	CELL PHONE
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Bioterrorism Events	24/7 – after hours		
Betty Wheeler	Biological Defense Trainer	904-791-1568	904-652-6834
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Bioterrorism Events	24/7 – after hours		813-459-4039
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