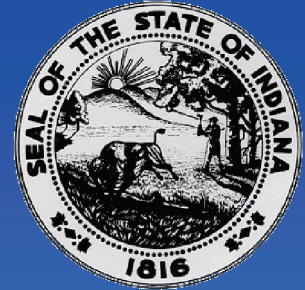


The LABryinth

Indiana State Department of Health Laboratories Newsletter



Indiana State Department of Health Laboratories

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& ISDH Lab Director

Our Mission:

The Indiana State Department of Health Laboratories partners with other public health agencies to provide timely and accurate information needed for surveillance and outbreak investigations to protect and improve Hoosier health.

LRN Clinical Specificity Study

By Mark Glazier



Real-Time PCR Instrument

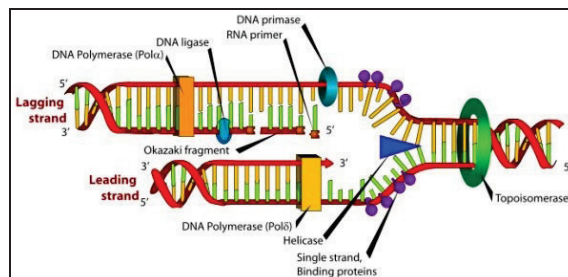
In September and October of 2010, the ISDH Biothreat Laboratory participated in a study sponsored by the Association of Public Health Laboratories (APHL), in collaboration with the Centers for Disease Control and Prevention (CDC), to determine the diagnostic specificity of Laboratory Response Network (LRN) real-time PCR assays. Our lab was one of nine state public health labs selected for the study based on the ability to receive one or more of the specified human

clinical sample types, the capability to perform the specified DNA extraction methods in a BSL-3 laboratory area, and proficiency with the particular LRN real-time PCR assays being evaluated.

Labs were required to test 100 leftover human specimens collected for routine clinical care or analysis that would have been otherwise discarded. Our lab was assigned to test abscess/wound swabs, aspirates or tissue for three specific biothreat agents. Participating labs were to partner with an outside laboratory to receive specimens that had already been de-linked of all patient identifiers with the exception of the age, gender and collection date. Because of the established working relationship and close proximity, our lab chose to partner with the Clarian Pathology Laboratory.

Over a three-week period, our lab received the 100 required specimens from the Clarian Lab. DNA was extracted from the specimens utilizing both a manual DNA extraction method as well as an automated DNA extraction method. The extracts were then tested using the Applied Biosystems (ABI) 7500 Fast Dx instrument system. Because of the number of required controls for the LRN real-time PCR assays, 38 PCR runs, with nearly a full 96 –well plate for each run, had to be performed to test both sets of extracts from the 100 specimens.

The LRN real-time PCR assays utilized in this study were developed by the CDC for the detection of biothreat agents. These assays have been deployed to reference laboratories of the Laboratory Response Network, a consortium of more than 160 State, Federal and Local public health, Department of Defense, and veterinary laboratories that are ready to rapidly detect and identify these agents. As these assays have become an integral part of federal, state, and local emergency management responses, understanding the diagnostic specificity will ensure confidence in positive results.



DNA Replication Process

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Overview of Environmental Lead Testing Conducted at ISDH

By Phil Zillinger



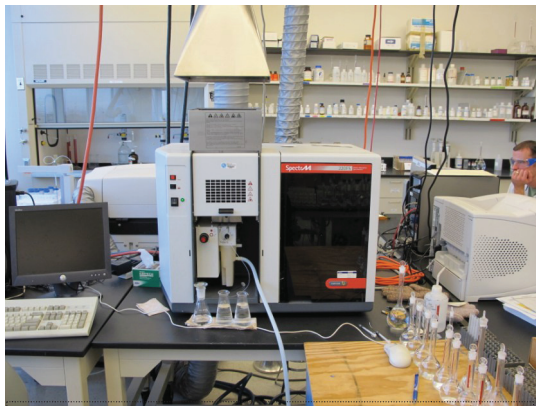
Soil, paint chip and dust wipe samples.

The Metals Laboratory of the Chemistry Laboratories tests environmental samples for lead. These samples include paint chip, dust wipe and soil samples taken at homes where children with elevated blood lead levels have been identified. These samples are taken by risk assessors from the Indiana State Department of Health Lead and Healthy Homes Program as well as county and city health departments. The laboratory analyzes these samples for lead using flame atomic absorption spectroscopy (FLAAS) and inductively coupled plasma-atomic emission spectroscopy (ICP-AES).

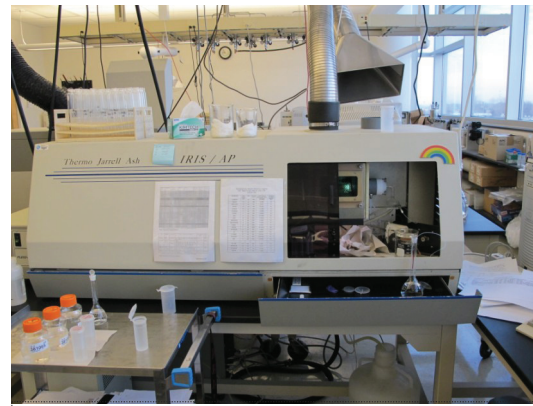
The environmental samples tested for the risk assessors by the ISDH laboratory are usually obtained in the homes where children live with lead-based paint hazards. The program uses the results from the analysis of the samples to confirm where the hazards are in a home so they can educate the parents or property owners in the best way to remediate the hazards using lead-safe work practices. Also, after the

hazardous peeling and/or chipping paint has been removed, the risk assessors use new sample results from dust wipe samples (dust wipes supplied by the ISDH laboratory) to make sure the remediation work was done correctly and the work area has no lead-based paint dust hazards left behind.

The number one cause of children becoming lead poisoned (about 90 % of the cases) is still older homes with deteriorating paint. Toys, folk remedies, and imported candies are also a factor in some homes. Over the last ten years, the number of children with elevated blood lead levels has been decreasing. The presence of lead in homes still depends on risk factors such as age of the home and whether the home is a rental property or owner-occupied.



FLAAS instrument



ICP-AES instrument



About Lead Paint:

- Lead (white lead) was used in paint for centuries. It was treasured for its opacity, durability and performance. It is still sought after by some artists for its performance.
- Banned by USA in 1977
- Lead compounds have naturally sweetish taste, making it attractive for children to eat paint chips. However, eating paint is not only way to get lead poisoning; paint dust can be inhaled with similar effects.
- Lead paint is still in use in some countries. It continues to be a problem in imported goods (e.g. toys from China) because manufacturers tend to go for cheaper materials.

Epi-Ready Training Canvases the State to Improve Foodborne Disease Outbreak Prevention and Response

By Jerry Hege



During the fourth quarter of 2009, the Indiana State Department of Health (ISDH) sent three staff members – Amie May (Epidemiology Resource Center), Dan Gala (Food Protection) and Jerry Hege (Laboratories) – to participate in Epi-Ready Foodborne Illness Response Strategies. This was a training conducted in Montgomery, Alabama as a three day course.

Epi-Ready Team Training is a nationwide initiative intended to provide up-to-date foodborne disease outbreak investigation and surveillance training to public and private sector environmental health professionals as well as other professionals who have collaborated in conducting foodborne disease outbreak investigations. It was the goal of these staff members and the ISDH to construct an Epi-Ready Training Team that could return to Indiana and provide a training opportunity that offers up-to-date foodborne disease outbreak investigation and surveillance training. This training is available to public health nurses, environmental health specialists, and

laboratorians working in city and county health departments, private sector professionals, as well as other professionals who have collaborated in conducting foodborne disease outbreak investigations.

Throughout the first half of 2010, the Indiana Epi-Ready Training Team worked to create a training program based on the nationwide Epi-Ready initiative but specific to the state of Indiana and our needs. Local and state agencies vary in their approach to, experience with, and capacity to respond to foodborne disease outbreaks. These trainings are intended to give all agencies a common foundation from which to work and to provide examples of the key activities that should occur during the response to outbreaks of foodborne disease. The Indiana Epi-Ready Team Training is made up of interactive group exercises, question and answer sessions, and didactic lectures on passive surveillance, outbreak determination, environmental assessment, epidemiological investigation, laboratory guidance, and final report writing.

Starting in September 2010, Epi-Ready was rolled out across the state with five training sessions. Over the next few months, the Indiana Epi-Ready Training Team held five workshops that were each two days in length and were strategically held throughout the state in Allen, Vanderburgh, Porter, Dearborn, and Marion counties. The goal of these trainings was to integrate the methods used to detect, investigate, and control foodborne outbreaks. The five training sessions reached 169 attendees from the ISDH and local health departments with varied backgrounds including Environmental Assessment, Epidemiology, Laboratory, and Public Health Nursing. Trainings were provided at no cost to participants.

It is our hope that this collaborative process will aid in management and prevention of future foodborne outbreaks in the State of Indiana by filling in gaps and updating site-specific procedures, providing models for new procedures where they did not exist; and training to program staff.

Food and Dairy Supervisor Serves as FERN National Trainer

By Tom Cronau

Hesham Elgaali, Ph.D., of the Food and Dairy Microbiology Laboratory, participated as one of the trainers/instructors at the Food Microbiology and Rapid Methods course sponsored and conducted by the Food Emergency Response Network (FERN) and the USDA Food Safety and Inspection Service (FSIS) FERN National Program Office (NPO). The course was conducted in Seattle, Washington at the Washington State Public Health Laboratory. This is the second time that Dr. Elgaali has been invited to participate in this role. Earlier, in March 2010, Dr. Elgaali attended a train-the-trainer course on food microbiology analyses that was directed by FERN staff and held in Richmond, Virginia at the Virginia Division of Consolidated Laboratory Services. He was later invited in May 2010 to participate for the first time as an instructor at the same FERN training course conducted in Seattle.

(continued on next page)

Food and Dairy Supervisor (continued)

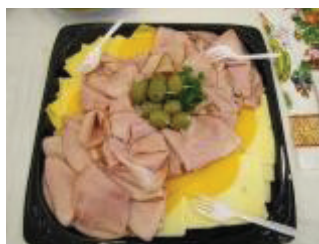
This particular course is offered to analysts having only introductory experience with microbiological food sample preparation. The students receive hands-on experience and training in laboratory practices, principles, and procedures for the general microbiological analysis of foods in accordance with the USDA-FSIS Microbiology Laboratory Guidebook and the FDA Bacteriological Analytical Manual (BAM). The attendees are also provided information and demonstrations about rapid methods and instrumentation such as the VIDAS, BAX Q7, Dynal BeadRetriever, and the Matrix Microscience Pathatrix Auto. In order to be eligible to attend, the applicant must be employed by one of the current 170 FERN member laboratories nationwide, which includes 116 state/territorial, 17 local, and 37 federally operated facilities. Of these 170 member labs, 133 are listed as qualified for food microbiology, 108 for food chemistry and 33 for radiological analyses. The Indiana State Department of Health Laboratories is qualified for all three disciplines.

Funds to set up and maintain training centers for use by FERN have been provided in FERN-sponsored cooperative agreements to state-operated laboratories located in Boston, Massachusetts; Phoenix, Arizona; Richmond, California; Richmond, Virginia; St. Paul, Minnesota, and Seattle, Washington. The courses conducted may cover any or all of three disciplines (Microbiology, Chemistry and Radiochemistry) included in the FERN program. The FDA and/or the USDA provide guidance and direction for the development of the courses. More information about FERN can be found at www.fernlab.org

In addition to the FERN training involvement described above, Dr. Elgaali is an active member of the Methods Coordination Committee (MCC) of FERN. The MCC consists of subject matter experts in each of the FERN disciplines. The members were selected and appointed by the FERN National Program Office (NPO). The MCC is responsible for the initial review of submitted methods and verify their general applicability towards the efforts of FERN. Additional documentation necessary for further evaluation of the submitted method may be requested by the MCC. The group meets weekly through webcasts to discuss submitted methods. The next step is the appointment of a Technical Review Committee (TRC) to work through the detailed review and evaluation. The MCC next reviews the recommendations report of the TRC and issues a final report to the NPO with recommendations.

Happy Holidays from ISDH Laboratories!

Every year, ISDH Laboratories host holiday pitch-ins in November and December. As you can see from the pictures, the staff of ISDHL enjoyed celebrating and sampling the wide variety of delicious food!



Micro-Toon

by Mike Cross



"I am taking you off microscope duty for a while."

Employee Spotlight- Bart Janssens

Bart is a member of our Chemistry Division here at ISDH. He works in the Inorganic laboratory, analyzing water samples for fluoride, alkalinity, and TOC (total organic carbon). When needed, he volunteers to help out in Central Receiving area as well. Bart was born in Belgium but immigrated to the United States as a child. He attended Purdue University and received his bachelors of Chemistry in 1993. A year later he started work at ISDH and has since been promoted to a Chemist 2.

In his spare time, Bart enjoys surfing the Internet and playing board, card, and computer games.

**The LABrynth**

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