

INDIANA STATE DEPARTMENT OF HEALTH LABORATORIES

INNOVATIONS IN QUALITY PUBLIC HEALTH PRACTICE

THE INDIANA LABORATORY SYSTEM:
MORE THAN JUST CLINICAL LABORATORIES

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INNOVATIONS IN QUALITY PUBLIC HEALTH PRACTICE

COOPERATIVE AGREEMENT #1U60HM000803

INTRODUCTION

The Indiana State Department of Health (ISDH) Laboratories was a recipient of the Association of Public Health Laboratories (APHL) 2011 competitive Innovations in Quality Public Health Practice grant. The ISDH Lab proposed to answer the question: “What does the ideal Public Health Laboratory (PHL) System look like?” When the Indiana Laboratory System (ILS) was examined from the viewpoint of the initial system assessment performed in 2009, areas for improvement were apparent. Although there is no singular definition of an ideal PHL system, for our purposes, an ideal system was defined as one in which basic foundational relationships with all Indiana laboratories were the cornerstone of the laboratory system. Prepared with this understanding, Indiana assessment scores and initial steps for improvement from 2009 were studied again. It was clear Indiana did not have an ideal laboratory system.

According to the 2009 assessment results (Appendix A), overall scoring activity for Essential Services #4 and #9, Partnerships and Evaluation, were minimal at 16.7% and 0.0% respectively based upon the three key indicators provided in the scoring tool. Next steps were identified during the original assessment and included relationship building, with specific mention of exploration of relationships with environmental laboratories, the use of websites, information sharing and collaboration (Appendices B to E). Since 2009, many of these needs have been addressed with Indiana’s clinical laboratories. Clinical sentinel laboratories throughout the state are familiar with the communication and training format of the ISDH Lab Outreach Team. However, the relationship between Indiana’s non-clinical laboratories had yet to be addressed and it was apparent the network needed to be defined and established.

PROJECT DESCRIPTION

This Innovations Grant was used to build relationships and create a network of partnerships with non-clinical laboratories in the Indiana Laboratory System (Appendix F). To accomplish this, it was necessary to develop a brand for the Indiana Laboratory System to identify all communications. With the help of the ISDH Office of Public Affairs, a logo and slogan were designed to represent the Indiana Laboratory System. The logo depicts environmental, veterinary, and clinical laboratories, connected within an atom-like graphic (Appendix G). The slogan is simply “Get Connected”.

Internal data searches were conducted for non-clinical laboratories throughout the state. Laboratory location and contact information were requested from several agencies including the Board of Animal Health (BOAH), the Indiana Department of Environmental Management (IDEM), and other environmental laboratory associations such as the Indiana American Water Works Association (IAWWA), and the Indiana Rural Water Association (IRWA). Internal ISDH staff was also contacted for information. Once this information was gathered, a database was compiled. This database is comprised of dairy, veterinary, and public and private water laboratories. Additionally, some municipal water treatment laboratories are included in the database. The water treatment facilities are included because they are certified by the Indiana Department of Environmental Management (IDEM).

MILESTONE 1

The laboratory contact information was compiled and forwarded to the ISDH Geographic Department for mapping. A layered pdf map was developed, showing the distribution of each laboratory type throughout the state. With the click of a mouse, the user may view any combination of clinical or various environmental laboratories, with or without county names, and may completely customize the map. Furthermore, the ISDH Geographic Department created an interactive webpage map. By hovering over a laboratory’s icon and clicking the mouse, this site provides the name and address of the laboratory, the laboratory director’s name, as well as the phone number and email address of a designated contact person. This website is designed for ease of access for member laboratories; member laboratories are encouraged to contact one another for

support and information sharing. To access this webpage, go to <http://gis.in.gov/apps/ISDH/ILSLabs>. See Appendix F for example maps.

Laboratory contact information was also entered into the ISDH Labs' SharePoint site. Laboratory information was categorized by laboratory type (Appendix I).

MILESTONE 2

The next phase of the grant called for site visits and the identification of stakeholders. The goal to visit 80% of Indiana laboratories was not reached due to scheduling difficulties. However, 25% of veterinary, 26% of water and 66% of food laboratories were visited. Packets of information about the Indiana Laboratory System were provided to each laboratory visited. These laboratories were receptive and excited to learn more about the Indiana Laboratory System. None of these labs knew about the system or that they were a part of it. Enough data were gathered from these visits to re-evaluate the initial goals of this project. Information packets were distributed to a total of thirty-one people during site visits.

Data gathered during this phase of the project included knowledge that the veterinary laboratories are not a top priority, although issues exist with timely communication between veterinary labs throughout the state and the ISDH Lab. Dairy laboratories test only the product from their home farms and therefore operate independently for purposes of this project. Food laboratories will require some attention, but at the time of this project were determined to be a lower priority than the environmental laboratories. Based upon issues discussed during face to face visits, it became clear that a narrower focus would be more beneficial to the outcome of this project. Compared to the other laboratories visited, it was evident that the environmental laboratories were much more concerned with their role within the system and how to improve system-related processes. Issues associated with waste water certification, analyst certification, new methods, electronic reporting to IDEM, and proficiency testing frequency were identified. In contrast, although veterinary and food laboratories expressed an interest in the system, there were no issues requiring immediate intervention at the state level.

MODIFICATION TO THE PROJECT

Review of data gathered from initial site visits clearly indicated the need for a shift of focus in this project. Rather than focusing broadly on all non-clinical laboratories, the issues and needs identified by environmental laboratories were clearly of the greatest priority. Scheduling conflicts required a change in the number of sites visited prior to the stakeholders meeting. The fact that fewer laboratories than anticipated were visited did not affect the outcome of this project.

MILESTONE 3

All environmental laboratorians were invited to the stakeholders meeting. This meeting was then named the *1st Annual Indiana Laboratory System Environmental Laboratories Meeting*. Held on June 25, 2012, invitations were sent to sixty-two laboratories throughout Indiana via our LabInfo email notification system (Appendix J). Additionally, professional organizations such as the IAWWA and the IRWA agreed to forward our invitation to their members to help get the word out to smaller municipal water facilities.

Thirty-two participants registered to attend, and two participants registered on-site. Three participants were called away during the meeting due to an emergency in their county. Two registered participants were no-shows. Final attendance was twenty-eight participants from twenty-one different facilities.

Dr. Judith Lovchik, Ph.D., the ISDH Laboratory Director, opened the day with a few words about the system and the laboratory program advisor position and its lengthy vacancy. Dr. Lovchik also discussed the future of the system. Jyl Madlem, the ISDH Laboratory Program Advisor, gave a presentation detailing the Innovations Grant, the Indiana Laboratory System, and the benefits of an efficient system.

Throughout the meeting attendees were asked to use classroom responders to answer demographic and survey-style questions. At the end of the day, anonymous evaluation questions were asked using the same technology. Demographic questions were used to determine at what type of lab attendees work and how long they have been in the workforce. Figure 1 indicates the types of testing performed at attendee's laboratories. The majority of laboratories represented at the meeting perform multiple types of water testing.

Figure 1: Question #1-I work in a facility which tests:

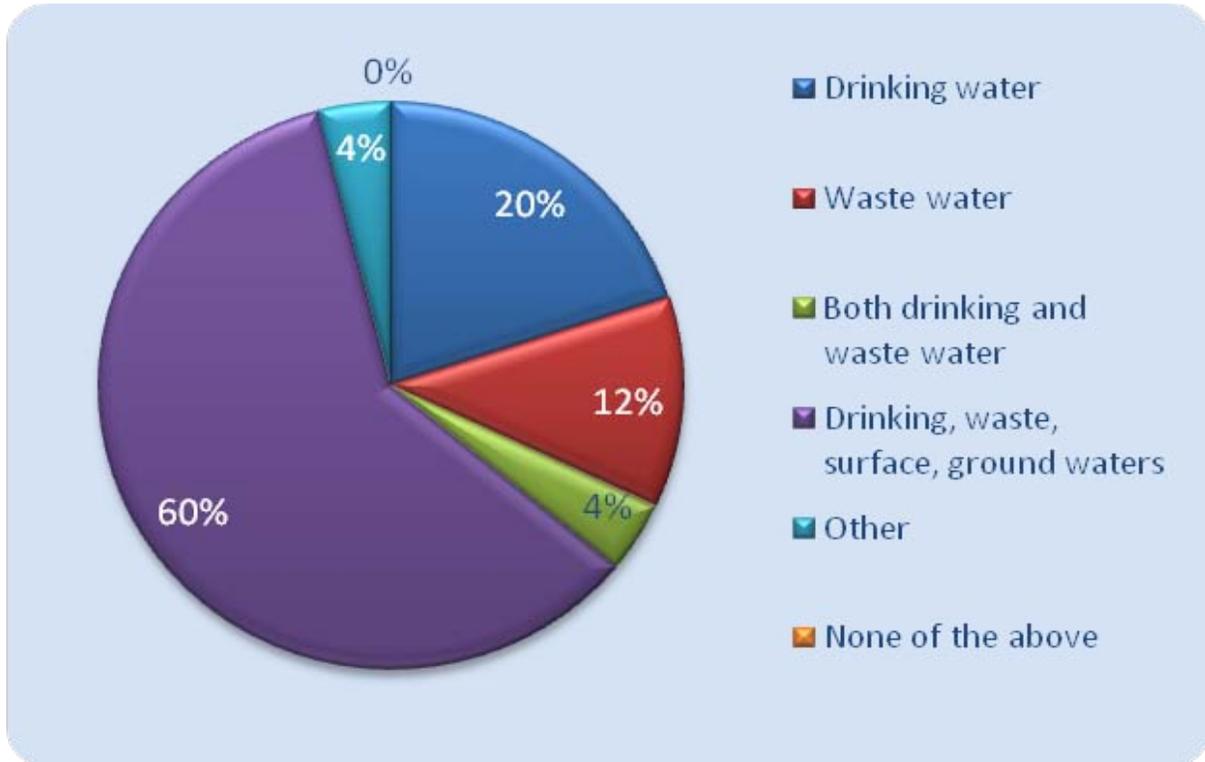
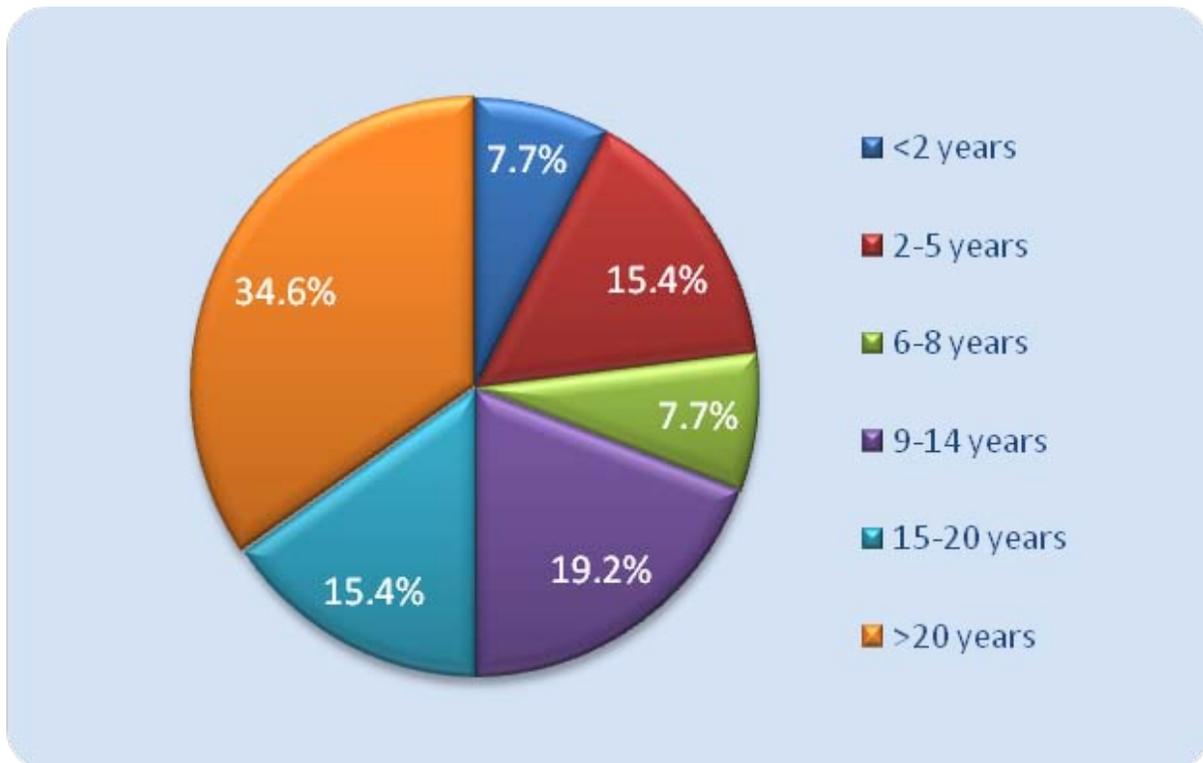


Figure 2 represents the length of time each attendee has worked in his or her position. A parallel was noted between the environmental and clinical workforce, as many of the laboratorians have been in the workforce for more than 15 years. As seen in Figure 2 below, 50% have been in their positions for 15 years or more. This is a critical issue that will need to be addressed and is not likely to be specific to Indiana. However, 22% of attendees have held their positions for less than five years, indicating some influx into the field by younger scientists. The level of experience of attendees ensured that discussions of prior and current states of affairs were accurately represented.

Figure 2: Question #2-I have been in this type of business for: (how long?)



SCENARIO RESPONSE

Smaller group discussions were held to talk about disaster recovery for several scenarios. This activity was used as a networking icebreaker. Attendees were given the opportunity to talk together in informal group settings and share information and stories from their respective laboratories. This session also prompted attendees to begin thinking about the written response plans at each of their own labs, which was discussed later in the meeting.

Three scenarios were presented to each group and then discussed. A representative from each group addressed the larger group about the disaster recovery plans for his or her discussion group. Figure 4 shows the provided scenarios. (Appendices K_M for complete scenarios).

Figure 4: Disaster Recovery Scenarios



Scenario 1

On an average Tuesday, severe weather strikes central Indiana bringing record amounts of rainfall. Hoosiers have been asked to take cover as this storm has demonstrated tornadic activity. Eleven reports of tornadoes have been received by area authorities. These reports also included several sightings of quarter



Once the storm passed, reported damage outages, and widespread flooding. Hardes located in Fountain and Montgomery Cou

Primary Issues:

- Flooding
- Loss of utilities
- Fountain and Montgomery Co. Hea

What do you do?



Scenario 2

You, along with your staff, come to work on a Tuesday morning in February. There was an ice storm the evening and overnight prior. You notice that there are no basic utilities with which to run the laboratory. The first clue is that the alarm doesn't sound when you go to deactivate the security system. Other notable indications include the following: the power is out leaving no lights, computers, or instruments; the phones are d no running water-not in the sinks or toilets. I'm sure y that day.



NWS INDIANAPOLIS H
STORM SYSTEM WILL PRO
MIDWEST LATE MONDAY IN
SIGNIFICANT SNOW ACCUM
WEDNESDAY



Local news broadcasts that power outages and water temperature warms up to above freezing for a minimum happen in 10 days. The governor has declared a state Indiana

Primary Issues:

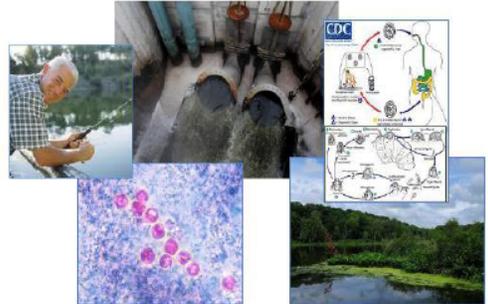
- Loss of utilities
- Loss of water
- Length of time unknown

What do you do?



Scenario 3

On July 25th, the Central County Health Department received hundreds of reports from area hospitals of people with watery diarrhea consistent with cryptosporidiosis. The most common symptoms reported were diarrhea (86%), vomiting (64%), abdominal cramps (62%), nausea (62%), fever (52%), headache (46%), and body aches (40%). 28 people have been reported to have died. Ten hospitals from Central and neighboring counties tested over 850 stool samples and confirmed the presence of Cryptosporidium species. The investigation into the source of the infection leads to the water treatment facility in Central County.



It is estimated that over 250,000 people are affected.

Primary Issues:

- Loss of life
- Surge in testing (clinical and environmental samples)
- Recreational area closures

What do you do?

Scenario 1

Scenario 1 described a storm system which had previously passed through central Indiana. The story was embellished to include major flooding and power outages throughout multiple counties. Group discussions included responses to ensure public safety through continued testing of water supplies, the use of back-up generators, sample referral to other laboratories, or calling on the National Guard if necessary.

Scenario 2

This scenario addressed the ice storm that affected the central portion of the United States in 2008. With reports of power outages lasting ten days or longer, this scenario presented different issues than Scenario 1. Group discussions included responses similar to those during Hurricane Katrina where residents were directed to central locations, which were easier to keep warm. The use of generators at school gymnasiums and churches were suggested.

Several questions were posed during the larger discussion for this scenario. The more critical questions included:

- If residents are directed to centralized locations, where would human waste go if water lines are frozen?
- Are utility company employees considered “essential” during this type of emergency? It was decided they would likely be considered essential and would be allowed to travel as part of their job to restore power. This would be stated in their respective job descriptions.
- What do laboratories do with samples already received?
- Would collaboration with other state laboratory systems be possible?

More questions were asked than were answered during discussions for this scenario, indicating that additional policy is needed and protocols are not currently in place for disasters of this magnitude. The ISDH Laboratories has scheduled quarterly meetings with the Indiana Department of Environmental Management to discuss these types of issues and collaborate on necessary protocol development.

Scenario 3

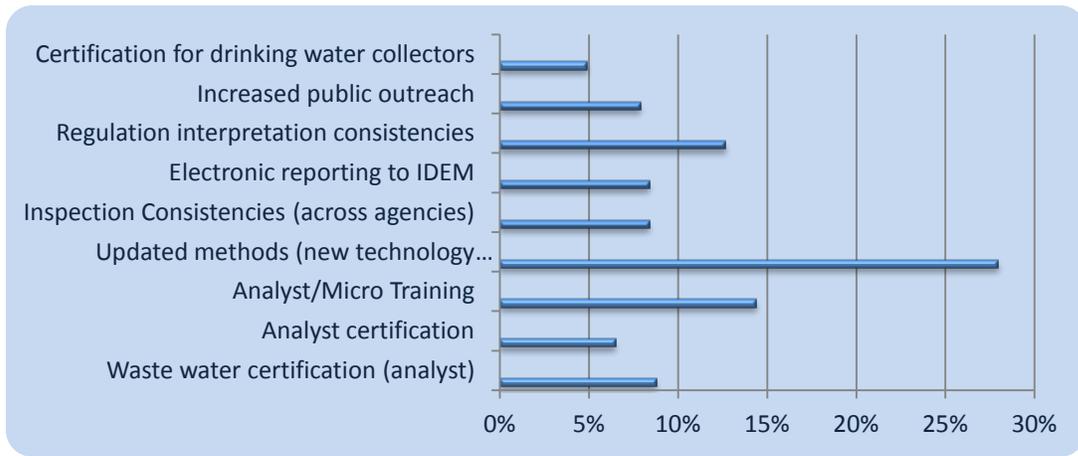
Scenario 3 described reports of hundreds of ill people with symptoms of diarrhea consistent with cryptosporidiosis. The scenario linked the source of infection to contamination of a water treatment facility in

a fictitious county in Indiana. This scenario was familiar to many attendees. Comments and questions raised from smaller group discussions included questions about reportable diseases and response time. Cryptosporidiosis is a reportable condition in Indiana; several attendees were unaware of this. Given the lengthy investigation time required in such a scenario, laboratories are placed in a reactive, rather than proactive, position. The reactive nature of the response to this type of situation lengthens recovery time. Attendees felt access to better protocols for the earlier detection of cryptosporidium in the water supply would help prevent such catastrophic outbreaks.

TABLE TALK

The Table Talk session was an opportunity for attendees to voice their concerns and discuss issues affecting their laboratories; some of these issues may be resolved with the help of the ISDH Laboratory. Several issues were common among each small group's discussions. Issues identified included certification for drinking water collectors, increased public outreach, regulation interpretation consistencies from IDEM inspectors, electronic reporting to IDEM, inspection consistencies across agencies, updated methods with new technology acceptance, analyst training, analyst certification programs, and a certification program for waste water analysts. Once these were recognized, attendees were asked to choose which three were their highest priorities, in order of importance and relevance to their respective laboratories. Scores were weighted such that the first selection was given more weight than the second and third respectively. Figure 5 details the results in percent, based on the weighted selection.

Figure 5: Question: Which of the following issues are important to you? (Select your top 3 in order)



When attendees were asked about the statistically higher response to the issue of updated methods, many indicated that better methods with faster turn-around-times are desirable in their laboratories but unavailable for use. Further analysis is necessary to determine whether the issue is internal to specific laboratories or if new technology has not yet been approved by agencies such as the Environmental Protection Agency (EPA), the United States Department of Agriculture (USDA) or others. The partnership the ISDH Lab has established with IDEM will play a critical role in resolving some of the identified concerns.

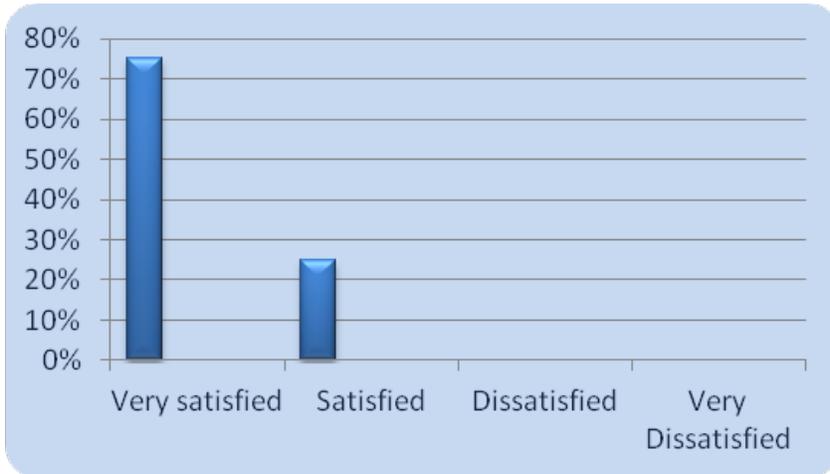
MEETING MATERIALS

Materials presented to each attendee during the meeting included a folder containing the meeting agenda, notes for the slide presentation, three scenarios used for discussion activity, table talk form used for discussion activity, Indiana Laboratory System flier, interagency partnerships graphic, the EPA Water Alliance Response Plan flier, elements of emergency response plans, APHL State Laboratory System graphic, and an open-ended meeting evaluation (Appendices N-S).

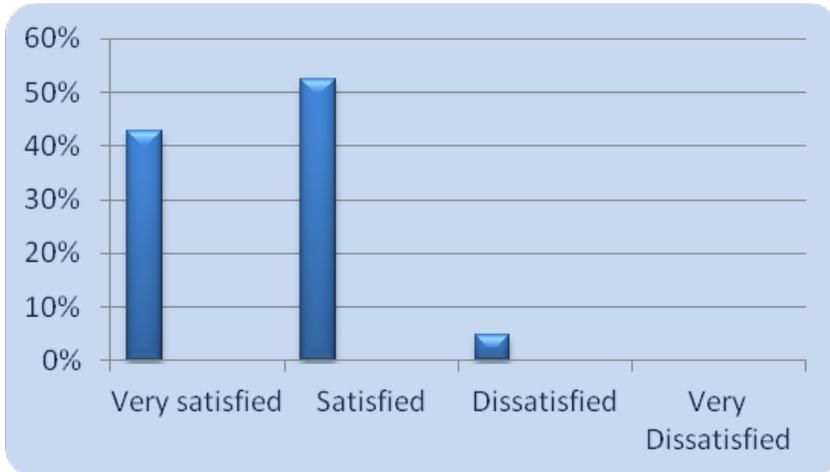
MEETING EVALUATION

As was mentioned previously, classroom responders were used for the meeting evaluation, rather than paper evaluations. Questions were answered anonymously. The following figures represent the questions and evaluation data gathered at the conclusion of the meeting. Meeting minutes were also emailed to all invitees.

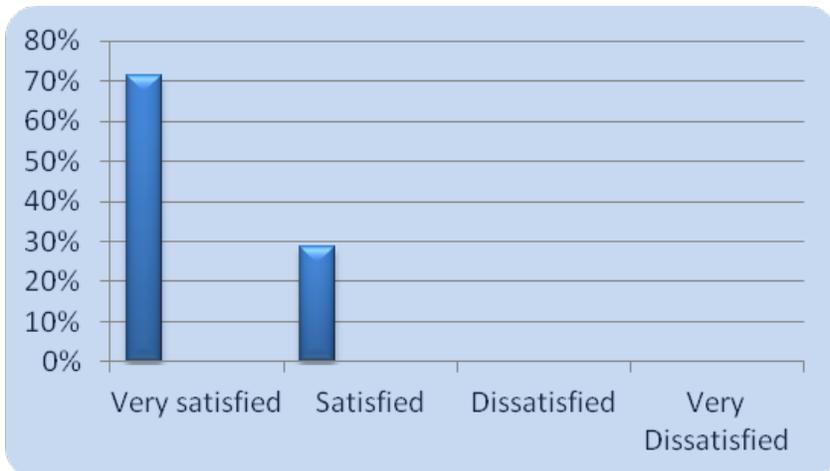
How satisfied were you with the registration process?



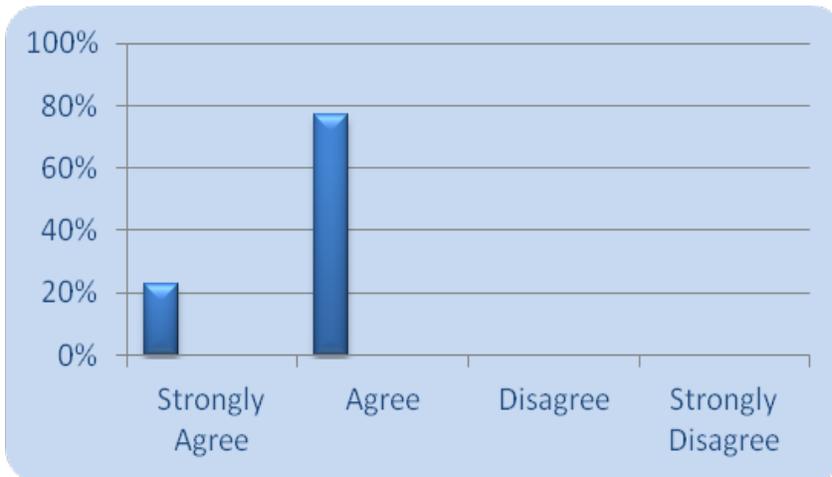
How satisfied were you with the meeting materials?



Overall, how satisfied were you with the meeting facilities?



The content of this meeting was appropriate and informative.



Why did you attend the meeting today? (Select up to 3 responses)



Do you plan to attend this meeting again next year?



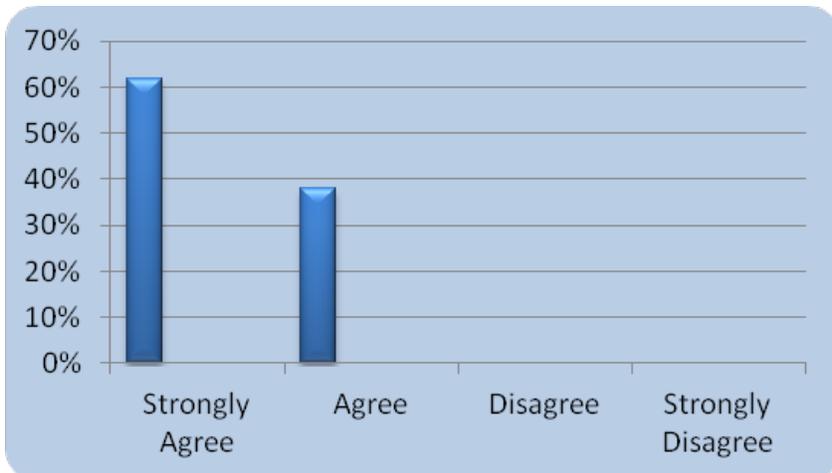
Would you recommend this meeting to others in the industry?



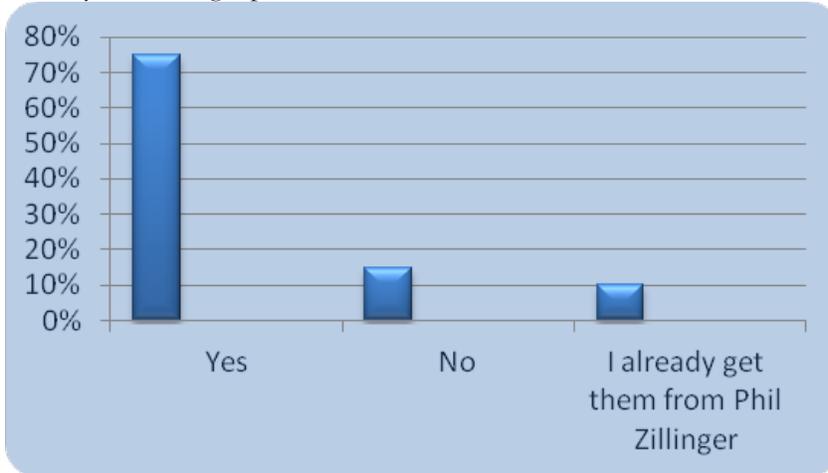
Would you consider continuing being more directly involved in improving our Indiana Laboratory System?



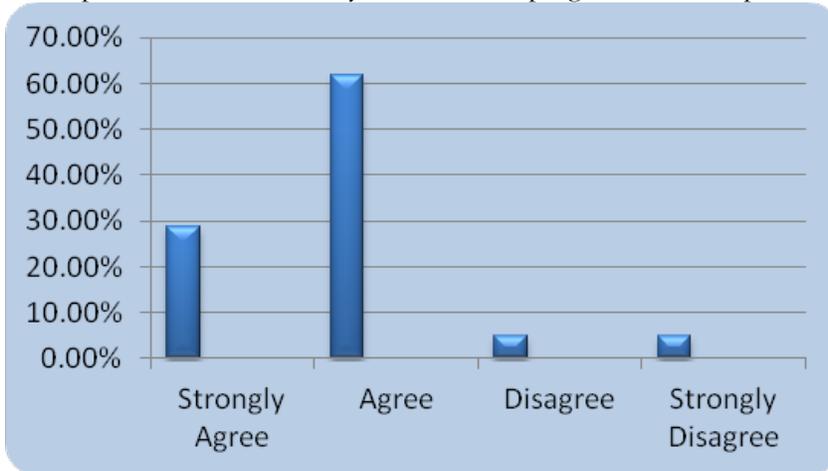
Analyst training opportunities need to be improved.



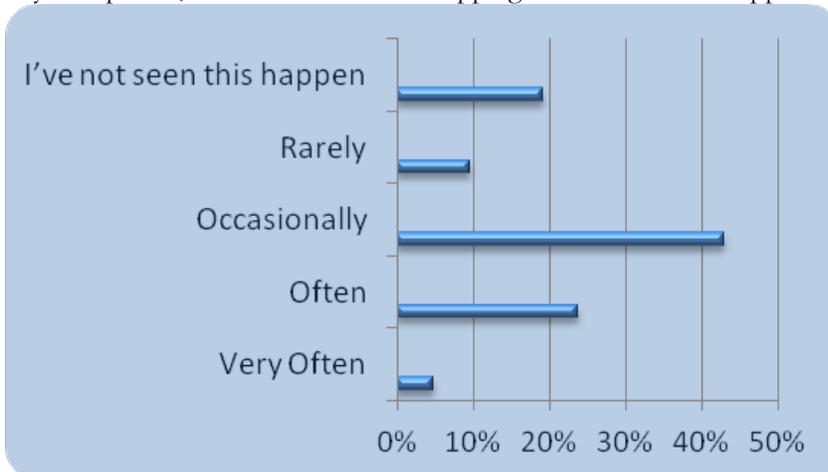
Would you like to get push notifications of new EPA standard methods?



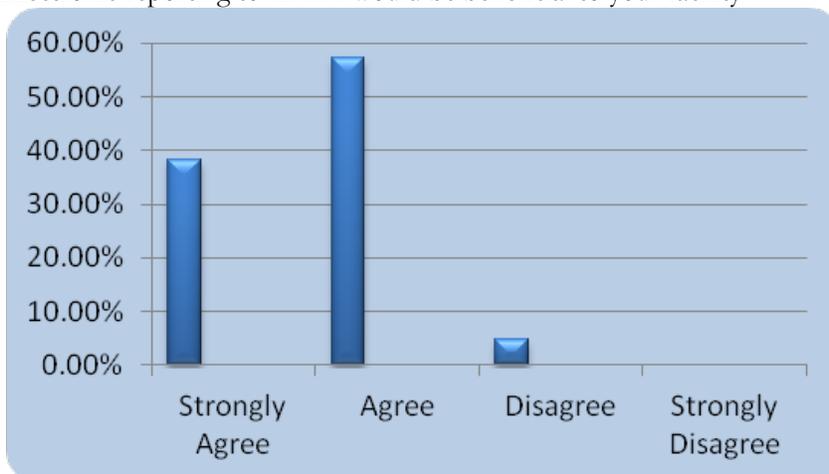
The implementation of an analyst certification program would help the industry.



In your opinion, how often does lab shopping for better results happen?



Electronic reporting to IDEM would be beneficial to your facility.



SUSTAINING THE INDIANA LABORATORY SYSTEM

Building this system is synonymous with the mission and vision of the Indiana State Department of Health. Those statements are “Promoting and providing essential public health services to protect Indiana communities” and “A healthier and safer Indiana,” respectively. Furthermore, the agency strategic priorities include improving response and preparedness networks and capabilities; better use of information and data from electronic sources to develop and sponsor outcomes-driven programs; and improving relationships and partnerships with key stakeholders, coalitions and networks throughout the State of Indiana. It is the desire of the ISDH Laboratories to apply the mission and vision statements of the agency by continuing its work to strengthen the Indiana Laboratory System.

Sustaining this system will not be possible without programmatic and financial assistance either through the Indiana State Department of Health or other sources of revenue. It is the intent of the ISDH to find available funding to continue work toward improved relationships, enhanced communication networks, and improved capabilities in Indiana.

LESSONS LEARNED

Indiana’s laboratory system is very young and unknown to most, even those within the system itself. Relationship building, promotion and agency support are required to improve the laboratory system in

Indiana. Some progress has been made with the clinical sentinel laboratories with regard to communication, training and outreach. The same progress is needed and desired with the non-clinical laboratories; fortunately, these laboratories are interested in improving the ILS. This grant provided the funding necessary to begin building this relationship with the environmental laboratories, laying the groundwork upon which to continue improving the system.

The initial site visits were important to the success of the environmental meeting. Understanding the issues facing the laboratories provided the structure for the environmental meeting. The configuration used during the meeting allowed for comfortable identification of primary issues and networking among participants, which gave attendees motivation to volunteer to assist in resolving these issues.

Involvement of internal stakeholders early in the planning process was a key lesson learned during this grant, as these partners may have different perspectives and expectations. The laboratory system is large and multifaceted with many connections to different agencies. This requires a delicate balancing act between what can be accomplished, by whom, when and how. Fortunately, resources are available. The Association of Public Health Laboratories (APHL) has a member resource center and their staff is readily available to assist. Communication among partners within the system will be the critical component in resolving the issues identified during this project.

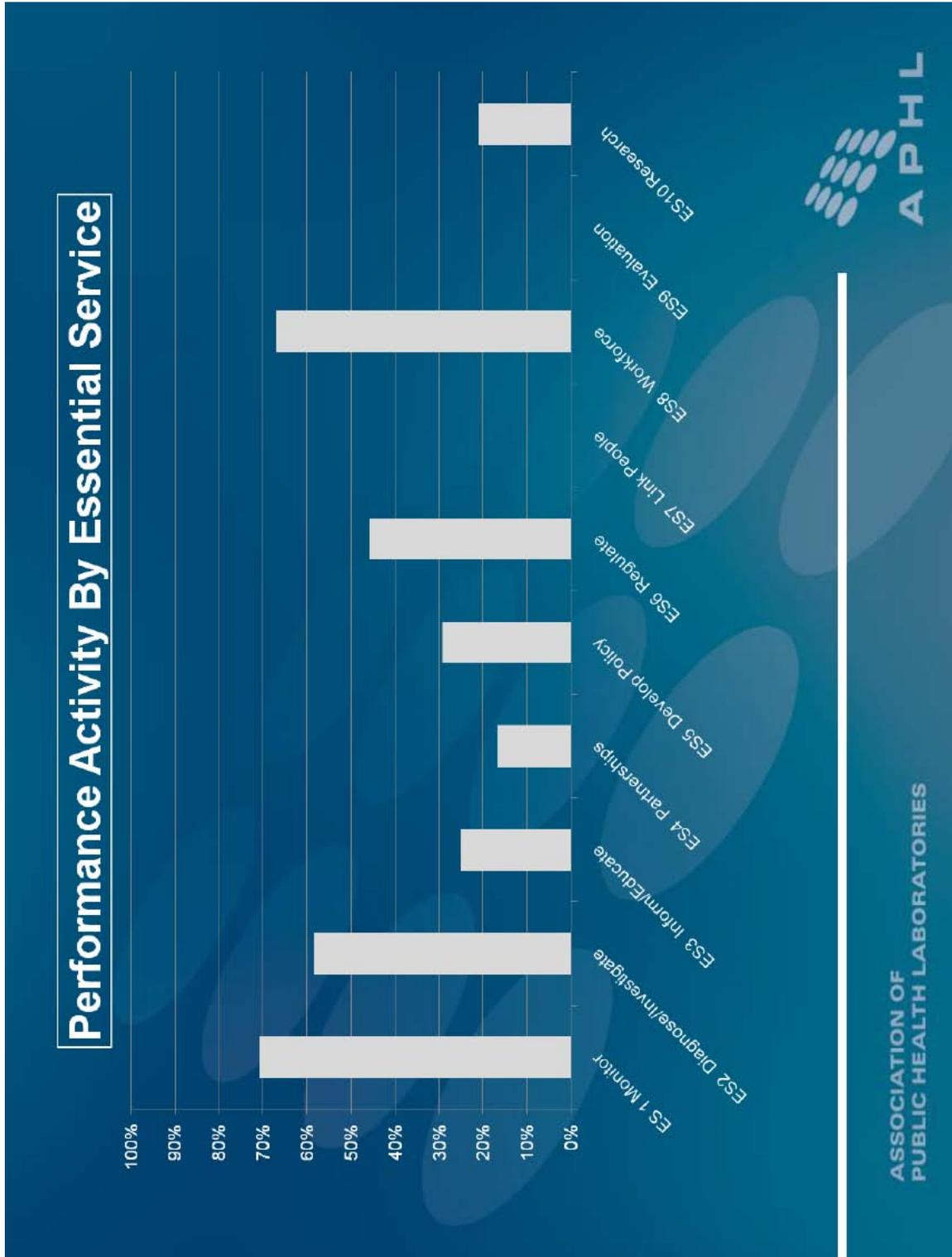
CONCLUSIONS

The Indiana Laboratory System is not an ideal public health laboratory system. The absence of a laboratory program advisor for more than a year hurt the system greatly. Now that this vacancy has been filled, there is much to be done. This project allowed for the exploration of the non-clinical laboratory side of the ILS and the strengthening of those relationships. Partnerships are a key component to an ideal system and successful partnerships begin with a simple hello and handshake. During site visits, it became clear non-clinical laboratories were unaware of the ILS and their participation in this system.

All environmental laboratories visited prior to the meeting were interested in the system and many had issues and concerns that could be addressed through avenues provided by the ILS. Veterinary and food laboratories were found to be reasonably self sufficient, although these laboratories were still interested in the system and their participation. The lack of critical issues simply indicated that a narrower focus was required for purposes of this project. The project was modified to focus specifically on environmental laboratories and concerns raised by these laboratories.

Resolving the basic issues discussed during the ILS meeting will result in a more efficient system as a whole and begin the process of providing better quality lab results throughout the state. The ISDH laboratories have started quarterly meetings with IDEM to discuss issues raised by the laboratories. It is the ISDH Lab's intention to directly involve laboratory representatives throughout the state whenever appropriate. This is one step in building the ILS from the environmental perspective.

As proposed in the ISDH Lab's application, the scope of this project required going beyond the ISDH Lab's traditional, established role with Indiana's non-clinical laboratories. For this reason, implementation met with some initial resistance. In the end, all partners recognized the benefit of starting with the basic face-to-face meeting of people to establish stronger relationships and partnerships, these relationships and partnerships are the cornerstone of a successful system. Regardless of how one defines "ideal", hands must be outstretched and assistance provided to resolve basic issues. Only then a stronger, more ideal system will result.



<p>Essential Service 4 3%</p> <p>Mobilize Community Partnerships to Identify and Solve Health Problems</p>	
<p>INDICATOR 4.1 CONSTITUENCY DEVELOPMENT</p>	
<p>4.1.1: Partners develop and maintain positive relationships with each other and with other key constituencies..</p>	<p>OVERALL 5%</p>
<p>INDICATOR 4.2 COMMUNICATIONS</p>	
<p>4.2.1: Communication plan is fully integrated with partners' and collaborators' communication plan.</p> <p>4.2.2: Communicates effectively in a regular, timely, and accurate way to support collaboration.</p>	<p>OVERALL 5%</p>
<p>INDICATOR 4.3 RESOURCES</p>	
<p>4.3.1: System works together to share existing resources and/or to identify new resources.</p>	<p>OVERALL 0%</p>



Indiana State Department of Health

ASSOCIATION OF PUBLIC HEALTH LABORATORIES

ESSENTIAL SERVICE 4 NEXT STEPS

- Develop process for assessment and evaluation
- Build relationships - regular communication will evolve
- Explore relationships with environmental lab
- Identify and strengthen partnerships with other key constituents
- Identify partners who will share data
- Utilize websites and link to other partners
- Leverage partnerships and collaborations to attain funding for public health lab issues

ES 4: MOBILIZE COMMUNITY PARTNERSHIPS TO IDENTIFY AND SOLVE HEALTH PROBLEMS

Indicator 4.1 Constituency Development

Indicator 4.2 Communications

Indicator 4.3 Resources

OVERALL 3%

Essential Service 9 Evaluation 0%

INDICATOR 9.1 SYSTEM MISSION AND PURPOSE
9.1.1: The laboratory system range of services, as related to its mission and purpose, are evaluated on a regular basis.
9.1.2: The laboratory system has a process in place for periodic review and evaluation of the test menus and technologies in use by laboratories within the system.
OVERALL 0%

INDICATOR 9.2 SYSTEM EFFECTIVENESS, QUALITY, AND CONSUMER SATISFACTION
9.2.1: Accessibility and effectiveness of personal and population-based laboratory services provided throughout the state are regularly determined.
9.2.2: Quality of personal and population-based laboratory services provided throughout the state is regularly determined.
OVERALL 0%

INDICATOR 9.3 SYSTEM COLLABORATION
9.3.1: The level and utility of collaboration among members of the System are measured and the results are shared.
OVERALL 0%



Indiana State Department of Health

ASSOCIATION OF PUBLIC HEALTH LABORATORIES

ESSENTIAL SERVICE 9 NEXT STEPS

- Share ISDH lab mission, then work to define 'system' mission
- Establish partners within the system
- As new technologies available, share across the system
- Determine and rank lab services' impact on health outcomes
- Assessment of lab service availability in Indiana
- Discuss targeting lab services to specific populations based on their needs.
- Conduct cost-effectiveness related to health outcomes
- Conduct system-wide satisfaction surveys
- Develop evaluation plan once system once it is defined
- Use collaborations to develop system-based improvements

ES 9: EVALUATION

Indicator 9.1 System Mission and Purpose

Indicator 9.2 System Effectiveness, Quality and Customer Satisfaction

Indicator 9.3 System Collaboration

OVERALL 0%

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Laboratory Program Advisor
Indiana State Department of Health
APHL Project Grant Submission: #5 What does the ideal PHL system look like?

Project Description

Background:

In 2009 the Indiana State Department of Health (ISDH) Laboratory completed the initial Laboratory System Improvement Program L-SIP assessment and made major strides towards understanding the role of the State Laboratory's partners in the Indiana Laboratory System (ILS). Unfortunately, shortly after completing the L-SIP, Indiana's Laboratory Program Advisor position was left vacant for 18 months and has only recently been filled. Efforts to improve the Indiana Laboratory System since the L-SIP assessment have waivered as a direct result of the position vacancy.

Brief Description of the Project:

The public health laboratory (PHL) system is complex and multi-disciplinary. The ISDH Laboratory is aware that the current understanding of the components of the Indiana Laboratory System (ILS) is incomplete. Knowing the existing relationships between ILS partners are not ideal, the ISDH Laboratory seeks to pursue a more comprehensive model. To date, efforts by the ISDH Lab to improve the ILS have been focused on clinical laboratories. In order to form a more ideal PHL system, relationships must be formed with environmental, veterinary and food laboratories as well. Indiana is faced with the challenge of how to expand our PHL system beyond our current network of sentinel clinical laboratories.

To address this challenge, the ISDH laboratory proposes a project to identify and develop/expand relationships with laboratories in Indiana in order to determine needs and capacity for the integration of statewide laboratories. This integration is crucial to moving

toward a comprehensive ILS – a primary goal of the ISDH Laboratory. In order to build bridges and establish relationships with major commercial environmental, veterinary and food laboratories that currently do not participate in the Indiana Laboratory System, Jyl Madlem, Indiana’s Laboratory Program Advisor; will identify, locate/map, schedule site visits, create contact database and Sharepoint website, and meet with primary stakeholders to discuss additional actions items for the ILS.

With the improved relationships, better communications, and centralized Sharepoint website, Indiana’s Laboratory System will have capabilities far beyond those currently at hand. These capabilities will include improved general communication and information sharing, increased surge capacity for environmental monitoring during and after natural disasters, better communication among veterinary and environmental laboratories, and best practice sharing.

Question Selected and Relevance of Project to Question

The ISDH laboratory has chosen focus on question #5; “What does the ideal PHL system look like?” In doing so, efforts will be focused on building networks with partners within Indiana not previously established. These partners include specifically, environmental, veterinary and food laboratories. The importance of the inclusion of these non-clinical laboratories cannot be underestimated when matters of public health are considered. It is critical that we establish relationships with these non-clinical laboratories for purposes of rapid response during zoonotic or foodborne outbreak situations. This project will build those networks and move toward an enhanced Indiana Laboratory System.

Use of Project's Products or Reports:

Results and conclusions obtained by this project will be utilized by other states to build strong relationships with all laboratories, which is a large step forward in the pursuit for the ideal state laboratory system. Methods used for this project are universal and may be carried forth to any state public laboratory system with similar goals. Furthermore, by presenting findings to the APHL and posting on the Member Resource Center website, all members will then have on-demand access to the methods utilized for this project and will be able to modify them for use to improve systems in their own states.

Project-Specific Methodology

Use of Funds for Project in Answering Question

Funds will be used to:

- 1) Develop specific ILS information flyers, which will be used as marketing tools to recruit environmental, veterinary and food laboratories into the ILS
- 2) Generate ISDH Laboratories Contact Information flyers, which will be used and information tools
- 3) Travel within Indiana for site visits to as many laboratories as possible as winter weather permits
- 4) Meet with stakeholders (facility fees)
- 5) Supplies necessary for meeting with stakeholders
- 6) Postage for ILS Information and ISDH Laboratories Contact Information flyers (for sites unable to visit)

7) Sharepoint website to house database of contact information (may be expanded for external partner use in the future)

Quantifiable Project Objectives

The objectives of this project include:

Goal	Objective	Action Item(s)	Timeline	Measurable Outcomes
Identify Indiana environmental, veterinary and food laboratories	Obtain name/ address and contact information for each laboratory	Gather data	By January 21, 2012	Data submitted to Geographic Information Systems (GIS) GIS map complete
		Create map	By January 31, 2012	
Build Database of non-clinical laboratories	Maintain personnel contact information of all laboratories	Use data gathered to build database	By February 15, 2012	Database complete
Site visits	Establish relationships	Educate laboratories on ILS and perform needs assessment	By April 10, 2012	Complete visits to 80% of laboratories, mailings to sites unable to visit. Follow up with phone calls. Set Stakeholder meeting date
		Identify Stakeholders	By April 10, 2012	
Stakeholder meeting	Build relationships	Laboratory's needs	By May 5, 2012	Meeting minutes, action items
	Re-assessment		To be determined	Possible re-assessment date set

Project Steps

In order to meet the objectives of this project, implementation will be conducted in four distinct phases:

A. Phase I: Information Gathering and Mapping

1. Research and gather necessary information on statewide environmental, veterinary and food laboratories. Resources already in service at the ISDH will be contacted for assembling this information. The information will be utilized for the purposes of relationship building and the creation of independent databases of contact information which will be expanded for such items as push notifications of public health emergencies, emerging threats, and training opportunities.
2. An Indiana map locating these laboratories will be created using geo-mapping technology services within the ISDH. This map will indicate locations of environmental, veterinary and food laboratories throughout the state of Indiana. Different indicators will be used for each type of laboratory for ease of identification.

B. Phase II: Networks and Databases

1. Build contact databases for each laboratory type (e.g. environmental, veterinary and food).
2. Create Sharepoint website for environmental, veterinary and food laboratories for purposes of housing contact database. Future uses may include best practice and idea sharing as well as further enhanced communications among member laboratories. At this time, however, this expansion is beyond the allowable

timeline for this project. Funding provided by this grant would be directed toward server costs for the Sharepoint website for the first year

C. Phase III: Site Visits and Stakeholder Identification

1. Site visits will be planned (scheduled by location in order to minimize travel time). Visits will prove useful as face-to-face communication is the best method for outreach relationship building. As a contingency, due to possible inclement weather constraints, telephone, video conferencing or webcasting will be utilized to make contact with all laboratories previously identified. If necessary, funding provided by this grant will be utilized for any fees required for electronic conferencing in lieu of travel costs.

- a. During site visits, Indiana Laboratory System materials will be provided to all laboratories. Funding provided by this grant will be used for branding and printing materials containing contact information as well as ILS information.
- b. Printed materials will be mailed to any sites not visited due to inclement weather. This mailing will occur only after contact and introduction with the laboratory have been completed.

D. Phase IV: Stakeholder Meeting:

1. Once all laboratories have been visited and/or contacted, major stakeholders will be identified. Stakeholders will include laboratories or people with expressed higher interest in the Indiana Laboratory System. The stakeholders will benefit

from and improve upon the Indiana Laboratory System by enhancing networking within their own circles and consequently increasing communication between those more reluctant laboratories and the Indiana Laboratory System. Casting nets in this manner will build our network and contacts for purposes of enhanced communication and relationship building. The Indiana Laboratory System will also assist these non-clinical laboratories by promoting their membership in the system and offering assistance when necessary.

2. In order to improve relationships with laboratories, the ISDH Laboratory will invite all major stakeholders from clinical, environmental, veterinary, and food laboratories to meet to discuss ideas and next steps in moving forward with the Indiana Laboratory System. Additionally, site visits will allow for information gathering from these laboratories on how the ILS can best serve them. Feasible ideas will be discussed at stakeholder meeting.

E. Phase IV: Dissemination of Project Findings

1. Gather all information and deliverables to create presentation for APHL Annual Meeting to be held in May 2012. Funding provided by this grant will also be utilized to send one person to the APHL Annual Meeting in 2012 as state funds are limited for out of state travel.
2. Identify relevant publication of interest and submit manuscript for possible publication.

Materials/Methods Required for Project Completion

The materials/methods required for this project include the following:

- 1) Contacting known personnel at environmental, veterinary and food/food agencies with whom ISDH works closely for purposes of gathering contact information for laboratories
 - a. Telephone required
 - b. Computer with internet/email access required
- 2) Gather all information for GIS mapping and routing for planned site visits while simultaneously contacting all people on lists to establish site visits
 - a. Telephone and computer with internet/email access required
 - b. Partner with ISDH GIS department to complete GIS Mapping
- 3) Compilation of gathered data into Sharepoint website
 - a. Live Sharepoint website
 - b. Computer with internet access
- 4) Begin site visits
 - a. ILS and ISDH flyers/Information gathering forms
 - b. Personal vehicle
- 5) Mailings for purposes of continuing contact with sites unable to personally visit due to weather constraints
 - a. Telephone for purposes of contacting sites unable to visit
 - b. Informational flyers and envelopes
 - c. Envelopes, labels and computer for addressing envelopes

- 6) Stakeholder notification
 - a. Telephone for notification of stakeholder status
 - b. Computer for email notification of form indicating stakeholder status
- 7) Stakeholder meeting preparation to include location selection, presentation preparation, supplies acquisition, and invitation notification (likely via email or telephone)

Evaluation

Objective Measurement and Evaluation

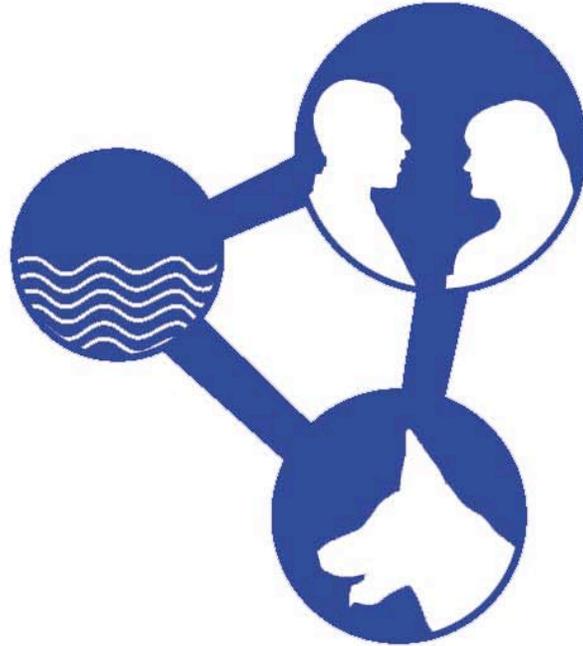
Successful completion of this project is multifaceted and has certain aspects that will be ongoing as the ILS continues forward with its mission.

Initial indicators will include:

- 1) Obtain laboratory information: to include name, address and contact person gathered on or before January 21, 2012
- 2) Geo Mapping: completion of the geo-mapping of all Indiana environmental, veterinary and food laboratories. This completed map will include a pictorial of the state of Indiana and differing icons indicating locations of the various types of laboratories. The ledger will include the names and addresses of each laboratory and will be separated by laboratory type (e.g. environmental, veterinary, food). It has not been determined whether this map will include sentinel clinical laboratories. Successful completion of this map on or before January 31, 2012.
- 3) Database building: data entry may begin when site is ready, 100% completion of data entry is expected on or before February 15, 2012.

- 4) Site visits will be completed to at least 80% of identified laboratories given winter weather constraints. All visits will be preplanned and lab tours will be requested. ILS information will be presented to the laboratory at this time. Questions will be asked regarding thoughts about the ILS and how this system may benefit the laboratory. Information gathered will be tabulated once site visits have been completed.
- 5) Identification of major stakeholders is another indicator of project success. It is expected that 10-20% of those people met during site visits will be stakeholders.
- 6) Stakeholder meeting- needs will be assessed; to be held in early May 2012. Action items and possible Indiana re-assessment dates will be identified.
- 7) Comparison of the 2009 assessment of Essential Service 4 (Mobilize community partnerships to identify and solve health problems), which was minimal, to reassessment scoring in this category.

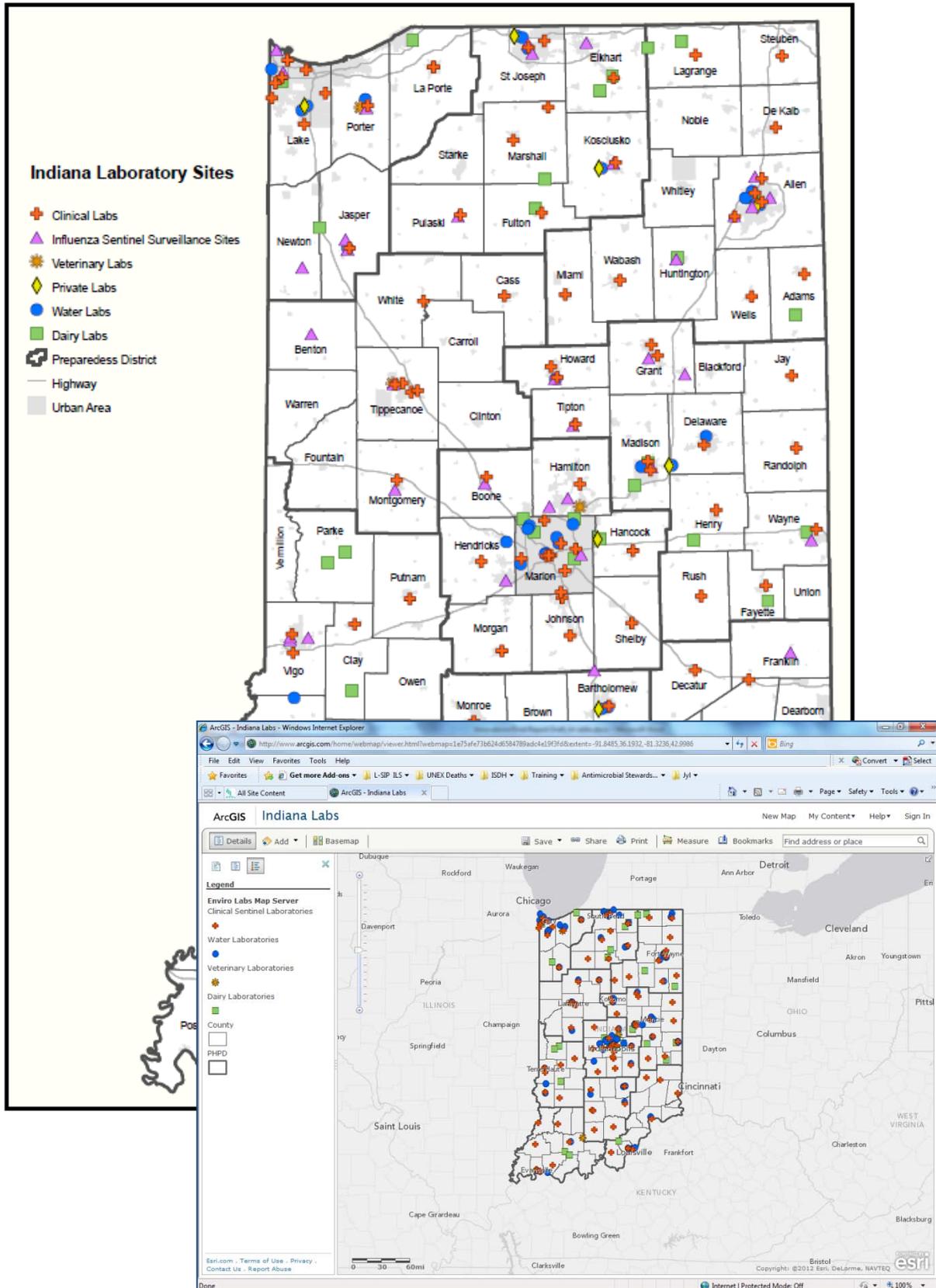
By utilizing the Stakeholder's Meeting evaluation, partner identification percentage, site visit percentage, and comparison of 2009 L-SIP ES4 scoring to re-assessment scoring, success of this project will then be completely assessed. While evaluation at the end of the project will occur, only after a system re-assessment will be become clearly apparent if Indiana is truly moving toward a more ideal PHL system.



Indiana Laboratory System

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Get Connected

APPENDIX H: INDIANA LABORATORY SITES MAP AND INTERACTIVE WEBSITE MAP



APPENDIX I: ISDH SHAREPOINT SITE LABORATORY CONTACT DATABASES

The screenshot shows a SharePoint site titled "Sentinel Laboratory Training". The main content area features a calendar for the month of July. A red arrow points to the calendar with the text: "Non-Clinical labs are now on Sharepoint. Separated into Laboratory type: Veterinary, Environmental, and Dairy".

The calendar shows the following dates:

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
				6	7	
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	1	2	3	4

The site also includes a left-hand navigation menu with options like "Picture Library", "Documents", "Links", "Calendar", "Tasks", "Sentinel Lab Personnel Contacts", "Veterinary Labs", "Environmental Labs", "Dairy Labs", "non-clinical Laboratories", "Web Tools", "Team Discussion", "Links", "People and Groups", and "Recycle Bin".

On the right side, there is a "Links" section with various resources such as "RETI (ending Library)", "Healthcare Dishes by Refrigeration Requirements", "ISDH Submission Forms", "Indiana Health Data Center Portal", "ASB Sentinel Level Clinical Microbiology Laboratory Guidelines", "ADH's Public Health and Scientific Policy", "CDC Lists for Biological Terrorism", "ADH Clinical Laboratory ET Readiness Plan", "ADH Packaging & Shipping Infectious Substances", "Survey Monkey", "State Forms Online Catalog", and "ISDH Forms Communicable Disease".

APPENDIX J: INVITATION TO 1ST ANNUAL INDIANA LABORATORY SYSTEM ENVIRONMENTAL MEETING

From: ISDH Labinfo [<mailto:isdh-lab-info@isdh.IN.gov>]
Sent: Wednesday, May 23, 2012 12:10 PM
To: ISDH Labinfo
Subject: 1st Annual Indiana Laboratory System Environmental Member Meeting

Good Afternoon,

As a lab that performs testing of public health significance, you are a member of the Indiana Laboratory System (ILS). The Indiana State Department of Health (ISDH) Laboratories is committed to strengthening this network of laboratories by facilitating effective communication, enhancing partnerships, and providing educational opportunities, all of which are included in the Essential Services of Public Health.

I was able to visit several laboratories, meet with their staff, and discuss some of their needs. However, it was not feasible to visit each laboratory in the state. In lieu of additional site visits, you are cordially invited to attend the first annual Indiana Laboratory System Environmental Member Meeting to be held on June 25, 2012 at the Marriott East in Indianapolis, IN. Your invitation is enclosed in this packet. If you are unable to attend, please forward this invitation to someone in your facility. We would like to have your laboratory represented at this meeting.

****Please RSVP with your name and contact information to this e-mail no later than COB Wednesday, June 20, 2012. ****

Additional information in this packet includes: the Indiana Laboratory System Fast Facts; a map of ILS laboratories; and basic instructions for using an interactive webpage located at <http://bit.ly/yBWHhM>.

This is an exciting time for the Indiana Laboratory System as we pursue the shared goal of a healthier state for all Hoosiers.

Best Regards,

Jyl Madlem, MS, MT(AMT)
Laboratory Program Advisor
Indiana State Department of Health Laboratories
550 West 16th Street, Suite B
Indianapolis, IN 46202
Ph: 317-921-5574
Fx: 317-927-7806
jmadlem@isdh.in.gov





Scenario 1

On an average Tuesday, severe weather strikes central Indiana bringing record amounts of rainfall. Hoosiers have been asked to take cover as this storm has demonstrated tornadic activity. Eleven reports of tornadoes have been received by area authorities. These reports also included several sightings of quarter to baseball-sized hail.



Once the storm passed, reported damage assessments include building damage, power outages, and widespread flooding. Hardest hit are the towns of Kingman and Crawfordsville, located in Fountain and Montgomery Counties.

Primary Issues:

- Flooding
- Loss of utilities
- Fountain and Montgomery Co. Health Departments closed-ETA to reopen unknown

What do you do?



Scenario 2

You, along with your staff, come to work on a Tuesday morning in February. There was an ice storm the evening and overnight prior. You notice that there are no basic utilities with which to run the laboratory. The first clue is that the alarm doesn't sound when you go to deactivate the security system. Other notable indications include the following: the power is out leaving no lights, computers, or instruments; the phones are down-no way to contact clients; there is no running water-not in the sinks or toilets. I'm sure you wondered why traffic was so light that day.



NWS INDIANAPOLIS HAZARDOUS WEATHER STATEMENT: *A STRONG STORM SYSTEM WILL PRODUCE SIGNIFICANT WINTER PRECIPITATION ACROSS THE MIDWEST LATE MONDAY INTO LATE WEDNESDAY. SIGNIFICANT ICE AND OR SIGNIFICANT SNOW ACCUMULATIONS ARE EXPECTED MONDAY NIGHT INTO WEDNESDAY.*



Local news broadcasts that power outages and water shortages will last until the air temperature warms up to above freezing for a minimum of 48 hours. They predict this will happen in 10 days. The governor has declared a state of emergency for much of the state of Indiana

Primary Issues:

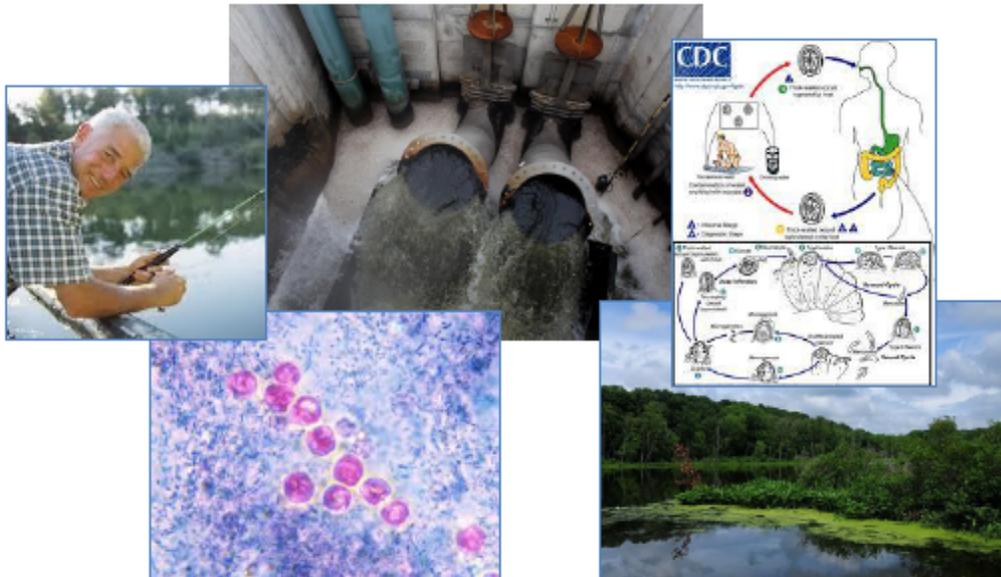
- Loss of utilities
- Loss of water
- Length of time unknown

What do you do?



Scenario 3

On July 25th, the *Central* County Health Department received hundreds of reports from area hospitals of people with watery diarrhea consistent with cryptosporidiosis. The most common symptoms reported were diarrhea (86%), vomiting (64%), abdominal cramps (62%), nausea (62%), fever (52%), headache (46%), and body aches (40%). 28 people have been reported to have died. Ten hospitals from *Central* and neighboring counties tested over 850 stool samples and confirmed the presence of *Cryptosporidium* species. The investigation into the source of the infection leads to the water treatment facility in *Central* County.



It is estimated that over 250,000 people are affected.

Primary Issues:

- Loss of life
- Surge in testing (clinical and environmental samples)
- Recreational area closures

What do you do?

Mission: To increase awareness of existing and emerging conditions by fostering effective communication, enhancing partnerships, and providing educational opportunities for all laboratorians in Indiana to provide a healthier state for all Hoosiers.

Indiana Laboratory System

Interagency Partnerships

- *Best practice sharing*
- *Sample Referral*

Educational Opportunities

- *Wet Lab Courses*
- *Webcasts*
- *Emerging Threats*

Enhanced Communication

- *Emerging conditions*
- *New protocols*
- *Antimicrobial resistance*

Quality Care for All Hoosiers

- *Safer Water Supplies*
- *Healthier Animals*
- *Healthier Families*

Safer/More Prepared Indiana

- *Policy Development*
- *Workforce Training*

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<http://www.in.gov/isdh/22421.htm>

APPENDIX O: INTERAGENCY PARTNERSHIPS





Water Laboratory Alliance Response Plan

The Environmental Protection Agency's (EPA) Water Laboratory Alliance (WLA) provides the Water Sector with an integrated nationwide network of laboratories. In support of the WLA, EPA is sponsoring an effort to improve water laboratory preparedness at the regional, state, and local levels. A key component of this effort, the Water Laboratory Alliance Response Plan (WLA-RP), is designed to assist WLA member laboratories with improving laboratory preparedness for response to natural, intentional, or unintentional water contamination incidents. EPA developed the plan in partnership with the EPA Regional Laboratories, the Federal Bureau of Investigation (FBI), state laboratories, first responders, and major drinking water utilities. This plan serves as the foundation of the Water Laboratory Alliance program.



What are the Benefits to the Water Sector?

- The WLA-RP provides an immediate mechanism to coordinate local, state, and federal laboratory efforts to meet analytical needs that may result from actual or suspected water contamination incidents. Using the WLA-RP procedures will allow laboratories to respond more quickly and efficiently to an incident. The WLA-RP also provides a tool for meeting potentially overwhelming analytical demands during the remediation phase of an event.
- The WLA-RP includes procedures tested and refined through Full-Scale exercises. The Full-Scale Exercises increase the level of preparedness of laboratories to respond to water contamination events by identifying improvements needed for the WLA-RP and laboratory procedures. The exercises also help strengthen relationships between laboratories which will be critical for a successful response.
- The WLA-RP also serves as the foundation for the development of the WLA by addressing relevant issues such as sample brokerage, analytical method selection, and secure data transfer.

What is the Overall Goal of the Water Laboratory Alliance Response Plan?

The goal of the WLA-RP is to assist WLA member laboratories with improving preparedness for response to actual or suspected water contamination incidents. Specifically, the WLA-RP addresses incidents that, due to their suspected cause or size, may require additional analytical support and a broader response than a typical utility, state, or federal laboratory can provide. The WLA-RP provides laboratories with a structure for a systematic, coordinated response to a water contamination incident that can be used in

Office of Water (4608-T) | EPA 817-F-10-004 | January 2010 | www.epa.gov/safewater

Alliance

(CS) structures and procedures. The WLA-RP provides a framework for the development of best practices of an event; including sample brokerage and analyte-specific methods. In addition, the WLA-RP provides procedures that only involve a single laboratory.

Development and Testing?

[Complete]. Regional Laboratory Response Exercises were conducted in all EPA Regions and Hawaii in 2008. The national WLA-RP best practices from the 11 RLRPs, as well as best practices from each EPA Region in 2008 to test the RLRPs.

Partner comments [Complete]. WLA member laboratories (state, water utilities, water sector organizations) provided input in the development and testing of the RLRPs. WLA member laboratories have the WLA-RP.

Findings [Ongoing]. FSEs are being conducted to enhance the WLA-RP, including the development of a Water Laboratory Alliance Management System, as well as other federal

Full-Scale Exercise—September 2009.

EPA conducted the first multi-Regional Full-Scale Exercise in Regions 1 and 2 (Northeastern US) in September 2009. This exercise was designed and conducted in conjunction with the WLA-RP to assess the effectiveness of response

laboratories, drinking water utilities, law enforcement, and federal, state, and local first responders. These multi-Regional exercises allow participants to practice procedures related to providing support to an environmental and public health incident that includes actual sample analyses, communication, coordination, and data reporting.

to a combined chemical and biological warfare agent attack. This exercise tested the WLA-RP and EPA Environmental Response Laboratory Network (ERLN) and CDC Laboratory Response Network (LRN) emergency response procedures through the analyses of actual environmental and clinical samples.

Phase 4 Revision of the WLA-RP based on lessons learned from the FSEs [Ongoing]. EPA will use the lessons learned from the FSEs and the progress made toward effective collaborative laboratory response to improve the WLA-RP.

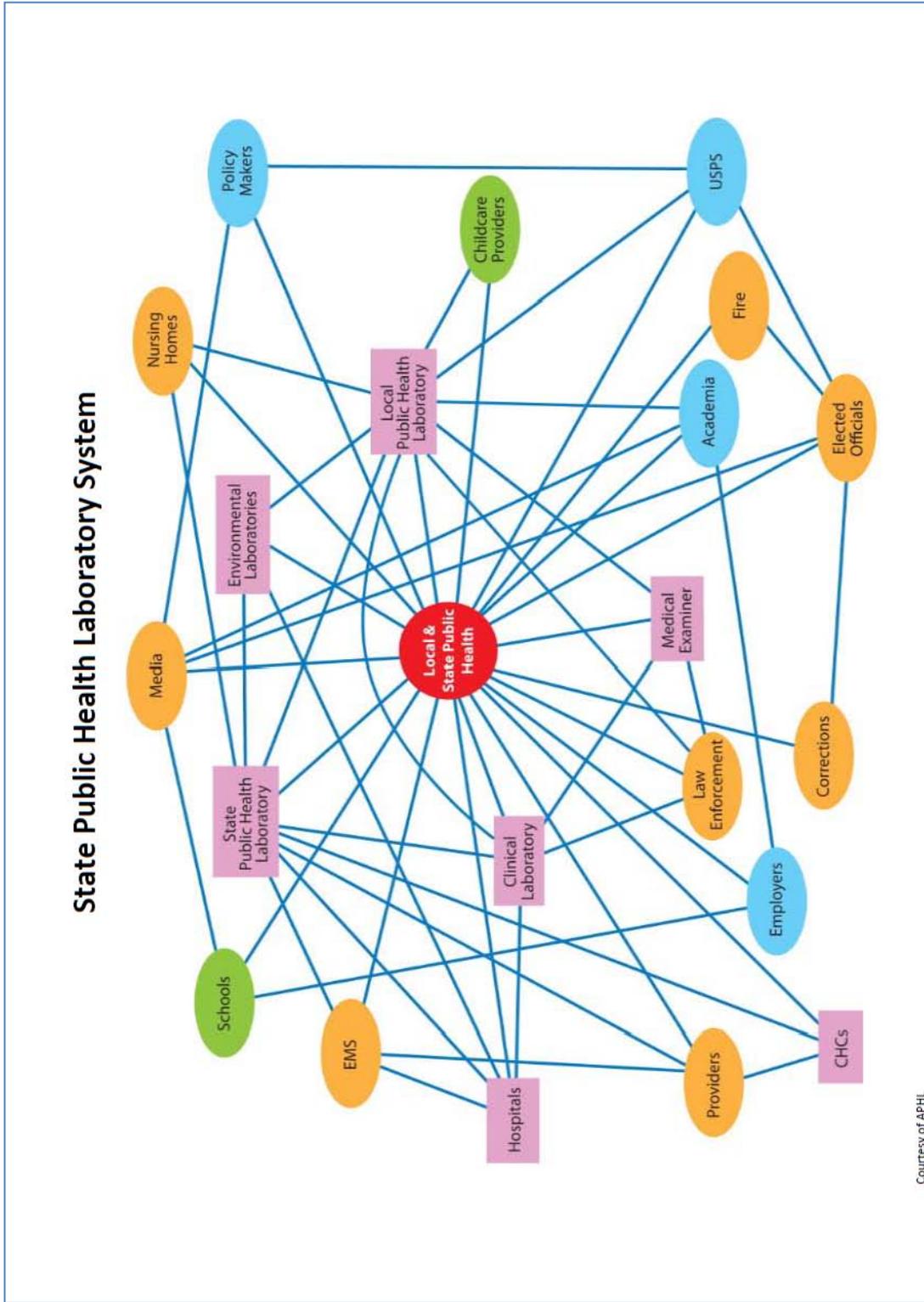
CONTACT US: For more information on the Water Laboratory Alliance Response Plan, please contact Latisha Mapp, EPA Office of Water (Mapp.Latisha@epa.gov) or your EPA regional laboratory contact (<http://cfpub.epa.gov/safewater/watersecurity/wla.cfm#contact>).

Office of Water (4608-T) | EPA 817-F-10-004 | January 2010 | www.epa.gov/safewater

ELEMENTS OF EMERGENCY RESPONSE PLANS

Emergency response plans typically include a description of the types of emergencies and conditions the plan is designed for; roles of participants and their anticipated resource requirements; and some process for keeping the plan current.

Element	Description
Applicability	Types of disasters or emergencies addressed by the plan.
Planning Assumptions	List of anticipated conditions (e.g., availability of resources). Changes in these conditions could affect plan implementation.
Concept of Operations	Specifies responsibilities and authorities of organizations that may be involved in the response and the relationships among them.
Logistics	Management of resources such as people, equipment, facilities, services, etc.
Plan Maintenance	Procedures for keeping the emergency response plan up-to-date through annual review and modification (if applicable).





1st Annual Environmental Laboratories Meeting Evaluation

What did you like most about the conference?

What did you like least about the conference?

In what ways could this conference be improved?

What kinds of sessions would you like to see included at future meetings?

Thank you very much for your time.

Sincerely,

A handwritten signature in cursive script, appearing to read "Jim Mall".