Community Access to Environmental Health Laboratories: A Report on Two Statewide Meetings

August 2014
About APHL

The Association of Public Health Laboratories (APHL) works to safeguard the public's health by strengthening public health laboratories in the United States and across the world. In collaboration with its members, APHL advances laboratory systems and practices, and promotes policies that support healthy communities. Its membership includes state and local public health laboratories, environmental laboratories and others that conduct testing of public health significance. Individuals and international representatives also participate in the association. APHL is a non-profit, 501(c)(3) organization with a history of over 50 years. APHL is located in Silver Spring, MD. More information is available at www.aphl.org.

About CDC

CDC works 24/7 to protect America from health, safety and security threats, both foreign and in the US. Whether diseases start at home or abroad, are chronic or acute, curable or preventable, human error or deliberate attack, CDC fights disease and supports communities and citizens to do the same. CDC increases the health security of our nation. As the nation’s health protection agency, CDC saves lives and protects people from health threats. To accomplish our mission, CDC conducts critical science and provides health information that protects our nation against expensive and dangerous health threats, and responds when these arise.

This publication was 100% financed by federal funds. The total amount of funding received for this project was $100,000. This publication was supported by Cooperative Agreement #U60HM000803 from by the Centers for Disease Control and Prevention. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of CDC or the Department of Health and Human Services.
National Center for Immunization and Respiratory Diseases (IP)
Office of Surveillance, Epidemiology and Laboratory Services (OSELS)
National Center for HIV, Viral Hepatitis, STDs and TB Prevention (PS)
National Center for Zoonotic, Vector-borne, and Enteric Diseases (CK)
National Center for Environmental Health (NCEH)
Coordination Office for Terrorism Preparedness and Emergency Response (CTPER)
# Table of Contents

- **Background** .......................................................................................................................... 1
- **Introduction** .......................................................................................................................... 1
- **Meeting Summaries** .............................................................................................................. 2
  - State Hygienic Laboratory at the University of Iowa: *Improving Environmental Health through Innovation, Practice, and Policy* ................................................................. 2
    - Outline of the IA-Workshop ................................................................................................. 2
    - Best Practices ..................................................................................................................... 4
    - Gaps ....................................................................................................................................... 4
    - Opportunities to Improve the Environmental Health System ............................................. 5
    - Closing and Evaluation ....................................................................................................... 5
  - New Hampshire Public Health Laboratory: *Improving Environmental Health Through Innovation, Practice & Policy* .......................................................... 6
    - Outline of the NH-Workshop ............................................................................................... 6
    - Public Health Organization ................................................................................................. 6
    - State Health Improvement Plan ......................................................................................... 8
    - Laboratory Capabilities and Priorities ............................................................................... 8
    - Closing and Evaluation ...................................................................................................... 11
- Themes and Lessons Applicable to Both States ........................................................................ 12
  - Education and Understanding by the Public ........................................................................ 12
  - Laboratory Services .......................................................................................................... 12
  - Protocols in Environmental Health ....................................................................................... 12
  - Referrals, Tracking and Follow-up ....................................................................................... 12
  - Improving Future Workshops .............................................................................................. 13
- **Future Directions** ................................................................................................................ 13
- **Conclusion** .......................................................................................................................... 14
- **Appendices** ........................................................................................................................ 15
  - Appendix A: APHL Request for Proposals ........................................................................... 15
  - Appendix B: Iowa Attendee List ............................................................................................ 21
Appendix C: Iowa Final Agenda ........................................................................................................ 23
Appendix D: Iowa Mercury Presentation ...................................................................................... 26
Appendix E: Cerro Gordo County (Iowa) Presentation ................................................................. 36
Appendix F: New Hampshire Attendee List .................................................................................. 42
Appendix G: New Hampshire Final Agenda ................................................................................. 44
Appendix H: New Hampshire Department of Environmental Services Presentation .............. 46
Appendix I: Manchester Department of Public Health (New Hampshire) Presentation .... 47
Appendix J: Nashua Department of Public Health (New Hampshire) Presentation ................. 51
Appendix K: New Hampshire Department of Public Health Services Presentation .............. 55
Appendix L: New Hampshire Public Health Laboratory Capabilities Presentation ............... 63
Appendix M: New Hampshire Arsenic Contamination Scenario .............................................. 65
Appendix N: New Hampshire Food Contamination Scenario .................................................... 66
Background

APHL frequently hears stories where the public had questions about environmental health impacts but did not know where to turn for help. To address this communication breakdown, APHL began considering how to improve community access to their state’s environmental health laboratories. Whether the questions surround the quality of water from private wells, food contamination, or chemical exposures in the home, the public deserves easy access to the environmental health professionals who can answer their questions.

APHL conducted a yearlong strategic assessment process. During the first stage, the association interviewed community advocates and key leaders to identify trends in community concerns likely to shape the future of environmental health. During the second stage, APHL shared a summary of the interviews with laboratory leaders, asking what they could do to better address community needs, now and in the future. A document compiled the results of the first two stages in order to prepare for the third stage, which involved a one-day, in-person forum in September 2012. Several next steps were identified, including the idea of pilot projects to investigate ways to improve the government environmental health system so that it could better utilize the rich capabilities of laboratories to meet community needs. This document describes two such pilot projects.

Introduction

On December 2, 2013, in cooperation with CDC/NCEH, APHL issued a Request for Proposals for two states to each plan and host a statewide meeting concerning their environmental health systems (see Appendix A).

APHL sought to improve communication and collaboration between public health and environmental agencies, government laboratories, partner organizations and, most importantly, community groups to address gaps in environmental health investigations and surveillance. The objectives were to:

- Identify and prioritize community environmental health concerns that could be, at least partially, addressed by public health laboratories.
- Define and evaluate existing ways for communities to engage the environmental health system, particularly the laboratory.
- Explore opportunities for enhancement or improvement of the system.
- Identify effective outreach and engagement techniques to determine if they could be replicated.

Following the receipt and scoring of four responses to the RFP, APHL selected the State Hygienic Laboratory at the University of Iowa and the New Hampshire Public Health Laboratory to plan and host these meetings. Both states adopted the following goals from the RFP:

1. Connect state government workers with environmental health responsibilities (including laboratorians, epidemiologists, health directors, toxicologists and regulators);
2. Connect communities with their environmental health system, focusing on how the laboratory could provide important testing;

3. Address community environmental health concerns, especially in low-income or minority populations; and

4. Improve the health of vulnerable populations and reduce health disparities.

The State Hygienic Laboratory at the University of Iowa hosted its meeting on April 28, 2014 and the New Hampshire Public Health Laboratory conducted its meeting on May 1, 2014. Juliana Birkhoff, of Birkhoff & Associates, facilitated both meetings and provided meeting summaries. Additionally, APHL and New Hampshire provided note takers who also shared their meeting minutes and summaries. What follows is a summary of each meeting, themes, lessons learned, conclusions about the overarching environmental health systems and potential next steps or future activities.

Meeting Summaries

State Hygienic Laboratory at the University of Iowa: Improving Environmental Health through Innovation, Practice, and Policy

On Monday April 28, 2014, 28 attendees discussed how to improve the public health system in Iowa by improving community access to the public health laboratories (IA-Workshop) (see the attendee list in Appendix B). Attendees included representatives from state and county agencies, federal agencies, the poison control center, universities, the state laboratory and nonprofit advocacy organizations. Notably, invited legislators and staff were unable to attend due to a special session at the Statehouse. The final agenda is included in Appendix C.

Outline of the IA-Workshop

Participants began the workshop talking about their personal experiences related to floods, which are becoming more common in Iowa. Next, the State Hygienic Laboratory (SHL or Laboratory) staff walked attendees through a tabletop exercise focused on hypothetical mercury poisoning. Finally, staff from Cerro Gordo County presented their experience addressing arsenic in unregulated drinking water.

These three situations allowed participants to describe their roles in, experiences with, and suggestions to improve, the system. The IA-Workshop concluded with recommendations on best practices, identification of gaps and opportunities to improve the system.

Flooding

During the Iowa floods, public health, natural resources, agriculture and environmental agencies worked together through the state’s emergency preparedness and response system. Most participants thought that the professional coordination and communication between the levels of government (federal, state, county and city) worked well.

Iowa invests in planning, training, and programs to ensure that their emergency response system works. Several participants explained that as the impact of an event increases, the system gradually expands to include more people and agencies. They pointed to
other participants in the room, identifying those involved in daily conference calls and communications throughout the disasters.

Participants explained that those outside the system typically found who to call through the phone book or internet. They felt that even if a resident did not call the right agency, everyone knew enough basic information to refer the call to the appropriate contact. As one participant said, “For the water quality arena, there is so much overlap, that there is always a right place to call.” Participants noted, though, that they were not sure about those that they did not hear from during emergencies (the “silent minority/majority”). This suggests that responding agencies do not know if they are missing a particular group during a response.

One participant asked if agencies or organizations tracked what happened to referrals, revealing that few agencies follow-up to see if the referral addressed people’s concerns. Poison control centers do log and track all calls in their system for follow-up. Several people wondered if a similar tracking system for environmental health would help agencies better understand how well they are addressing community concerns.

Participants also discussed if existing communication mechanisms were effective and efficient. Participants noted that agencies worked on creating accurate and consistent messages, but were not sure if residents received them as planned. More than one participant noted that even if the communication works, residents may not understand the overarching system. Further, some participants worried that the medical community, well owners and the “silent majority/minorities,” might not receive the right information or understand the information.

Participants identified “planning” as an area for improvement. Several people noted that the emergency response process was good, but that pre-emergency planning was not as proactive as it could be. Planning might test how residents found who to call, if vulnerable populations were receiving and understanding messages, and identify additional opportunities for communication, such as social media outlets.

**Mercury in Fish**

Pam Kostle, an Industrial Hygienist at the SHL, walked participants through an interactive scenario to demonstrate the players, roles, and coordination for a typical public health issue—possible mercury poisoning in a vulnerable population (See Appendix D). At each step of the scenario, participants commented on who would be involved and what actions would be taken. For example, the SHL would become involved only if the affected county did not have capacity to test samples or if they wanted to do a broader study.

The hypothetical exercise illustrated several places where the environmental health system could be improved. Several participants noted that the health agency and primary care providers may not consider metal poisoning, because they usually look to a microbial cause for outbreaks. Further, poison control centers have a lot of information on metals poisoning, but they do not always provide input during such investigations.
**Arsenic in Drinking Water**

Brian Hanft and Sophia Walsh of Cerro Gordo County presented their approach to managing arsenic in ground water: how they discovered the problem, developed hypotheses, gradually expanded the scope, included partners, communicated results and considered policy and remediation actions (See Appendix E).

In this case, the call came from a family displaying neurological symptoms. The husband called the health department because he supplied the department’s dental insurance and knew what they did. This led to participants discussing the role of the medical community, who may not know the symptoms associated with environmental exposures. The group discussed the difficulties associated with communicating concerns about arsenic in well water: Cerro Gordo County holds public meetings, but few people participate. The County Public Health Department also developed outreach tools to encourage residents test their wells for arsenic (including billboards and a video. However, the effectiveness is unknown. Attendees also noted that historic relationships with political leaders ensured there were champions for needed policy changes (now new wells have to be drilled to prescribed depths and require testing — the cost of which is covered by permit fees).

**Best Practices**

Participants agreed that they had good relationships, communication and coordination between the federal, state, county, and municipal agencies. By using an emergency management and response framework, the different players in the system understand their roles and when they should be involved. Incident response training assures a smooth process for designating a public health information office and coordinating messages. The arsenic case study demonstrated that the county knows how to involve the lab, how to partner with industry, and how to reach out effectively to the community. People also noted that innovative funding, such as increasing fees for permits, where legally permissible, to cover the costs of arsenic testing was an excellent way to fund programs.

**Gaps**

A number of people noted that the conversation about whom the community should call for assistance suggested a need to clarify public health responsibilities across the agencies. While participants were confident that questions were answered, they agreed that the public might benefit from clarification of the players and their roles in the system. In particular, participants said tracking responses to public questions and referrals would ensure accountability for answering questions.

Several participants stated that they did not always know the extent of the SHL's or local laboratories’ capabilities. People were not sure if the laboratories were involved at the right time for the right tests. Several people suggested clarifying what each entity could do so it was clearer. However, such clarification may be difficult because each county had different capacities. Additionally, the medical community rarely knew the laboratories’ capabilities, let alone engaged with them. Some participants suggested publishing an inventory of each laboratories’ capabilities.

Participants noted that people worked together to protect public health, and that they knew
and felt comfortable reaching out to individuals; however, communication based on an individual relationships is not ideal. As people leave positions, such connections may be broken. Using the Incident Command System’s approach to job descriptions may be a way to make connections more position-oriented rather than person-oriented.

Finally, the meeting discussed a number of miscellaneous items. Participants noted how often community members call the Poison Control Center and that as a problem moved from the individual-level to the community-level, they should better integrate the Center’s knowledge and resources. One person suggested the State Public Health Department could clarify its relationships with the Department of Natural Resources and the US Environmental Protection Agency.

**Opportunities to Improve the Environmental Health System**

Participants suggested replicating the emergency planning and Incident Command System model in the environmental health system. This would push partners to plan deliberately and require coordination to develop training, policies, and standard procedures. Several participants recommended reviewing community health needs assessments. People also recommended looking at tracking mechanisms ensure that community members concerns were met; one suggestion was to use the 311 or poison control center system as a model.

**Closing and Evaluation**

**The public needs to know the best way to get their questions answered** (i.e., through the local health department).

Those within the system almost always consider the laboratory when an incident occurs, but many admit they did not realize the breadth of the laboratory’s capabilities. The laboratory could consider ways to better market their testing menu, not just to those in the system but also to: the medical community, law enforcement & other first responders, and the public especially at-risk populations. Some wondered if the community needed to know more about the government laboratories, in particular, or more about public health capabilities generally. Participants felt that ensuring that community members reach knowledgeable contacts in the system was more important than improving the laboratory’s relationship with community members.

Questions about what information is needed and what resources are available mean that laboratory testing will not always be deemed necessary. If the laboratory was seen as a program rather than a support service, funding might be less of an issue. Iowa statute directs that the SHL shall provide tests of public health significance at no charge, but there is no line item for the testing. One participant asked how the system could identify a baseline of services that should be provided at all times. The same participant noted that the laboratory needed to explain the difference between themselves and private sector laboratories. One suggestion is for the laboratory to deny requests for services, citing a lack of resources to meet the need.

When someone in the system refers a constituent to another agency or organization, there should be a process to follow-up with them to ensure the loop gets closed. Iowa might consider adapting Baltimore’s 311 system or the Poison Control Center’s system for tracking questions.
When addressing interagency connections, utilizing personal relationships to address environmental health questions is a workable method, but it is neither a system nor is it sustainable. It may be worth replicating the emergency response planning model (Incident Command Structure) so that relationships become more standardized, allowing for improved training, policies and procedures.

Finally, participants reported that they valued the chance to get together and share information. Everyone encouraged each other to increase inter-agency communication and to spend more time planning for emergency events.

**New Hampshire Public Health Laboratory: Improving Environmental Health Through Innovation, Practice & Policy**

On Thursday May 1, 2014, 41 people discussed how to improve the environmental health system in New Hampshire through community access to environmental health resources and knowledge (NH-Workshop) (see the attendee list in Appendix F). Participants included representatives from state and local health agencies, healthy housing advocates, environmental agencies, academic partners at Dartmouth College and private citizens. Notably, due to an emergency response effort, the state’s epidemiologists were unable to attend the session. The final agenda is included in Appendix G.

**Outline of the NH-Workshop**

The NH-Workshop began with several presentations to ensure that participants understood how and where the environmental health system operates in New Hampshire. First, the Department of Environmental Services commissioner addressed policy issues associated with environmental health. Then, two local health officials provided background on municipal responses to and assessment of community health concerns. Next, the director of the Department of Public Health Services provided information on the State Health Improvement Plan (SHIP). Finally, a lively presentation covered the capabilities of the public health laboratory.

Following that foundation, participants reviewed two hypothetical situations to discuss agency involvement in public health activities, when they got involved and how they coordinated. Then all the participants discussed concerns and ways to improve the system. The attendees covered the following topics.

**Public Health Organization**

Department of Environmental Services (DES) Commissioner Thomas Burack explained the organizational and regulatory aspects of public health in New Hampshire (See Appendix H). The Department of Public Health Services (DPHS) coordinates with the Department of Environmental Services on water quality testing, healthy homes programs and arsenic in private wells, and climate change programs. The public health laboratory services the DES, DPHS and municipalities and public health officers on other public health issues.
Mr. Burack then explained that the regulatory systems do not reach all of the environmental health dangers in the state. For example, the Safe Drinking Water Act does not regulate private wells, where over forty percent of New Hampshire residents obtain their water and one-in-five exceed the health guidance for arsenic. Mr. Burack also noted that funds for the radon and indoor air quality programs were discontinued, and the department no longer conducts environmental epidemiology studies or issues fish consumption advisories. Because the DES lacks financial resources and legal authority to comprehensively address all environmental health issues, they collaborate with other agencies and entities like Dartmouth College and the Department of Health and Human Services (for example, on an arsenic-monitoring project).

**Local/State Collaboration**

Representatives from Manchester and Nashua, New Hampshire illustrated how the public health laboratory works with municipalities. Philip Alexakos, of the Manchester Department of Public Health, began with a review of a 2013 food poisoning situation. He described how municipalities reach out to the laboratory and other state and federal partners (See Appendix I). The situation demonstrated that the entities collaborated well for food safety emergencies.

Ashley Conley of the Nashua Department of Public Health reviewed a 2011 community health needs assessment (See Appendix J). She noted that their residents understood and valued pieces of the environmental health system (such as pool inspections and food testing) but they did not use the term “environmental health” to refer to those services.

When asked about their largest concerns, both officials addressed access to health care, clean water, safe food, and mosquito programs. Ms. Conley specifically noted that the public does not fully understand the health risks from lead and arsenic nor the prevalence of both in the New Hampshire. Similarly, the public knows about radon, but does not appreciate the associated health risks.

Several participants underscored the linkage between protecting environmental health and the evolving prevention model in health care; however, the community rarely understands environmental health threats. **Consequently, education is needed for them to understand how reducing exposures might prevent harm.**

**Healthy Homes**

Participants noted that there were other healthy homes concerns besides arsenic in water. Because New Hampshire eliminated the funding, there is no statewide screening for lead in homes. There are many older homes in New Hampshire, and lead exposure continues to be a concern. Several participants suggested that regular well-baby visits at the pediatrician’s office were a good opportunity to assess exposure to mercury, pesticides, roaches, and to discuss other environmental health topics. Unfortunately, doctor’s appointments are routinely short and must cover a number of issues.
One participant suggested that health officers could organize a community-wide approach to testing lead in homes, like Dartmouth does for arsenic testing (see below). Another stressed that for both lead and arsenic, county and state fairs are a way to provide public education as well as test kits and materials.

**State Health Improvement Plan**

Dr. Jose Montero, the DPHS Director, explained the elements of the public health system in New Hampshire and the State Health Improvement Plan (SHIP) (See Appendix K).

**Figure 1: Public Health System Model**

Figure 1, above, is taken from Dr. Montero’s presentation and is a graphical representation of the numerous interactions needed to address the competing needs of the public health system. The goal of the SHIP is to improve the whole public health system in New Hampshire. Dr. Montero provided an example: an integrated system to treat asthma would address causes as well as clinical management. He stressed the importance of setting priorities that have real impacts on public health.

**Laboratory Capabilities and Priorities**

Laboratory Director Christine Bean and Chemistry Program Manager Julie Nassif reviewed the public health laboratory capabilities in New Hampshire and the priorities under the SHIP (See Appendix L) as well as a brief overview of the Laboratory System Improvement Program Assessments performed in 2007 and 2011. Dr. Bean stressed that the laboratory is developing a communication plan, which will help communities understand the role of the
laboratory in environmental and public health in New Hampshire. This communication plan is part of the laboratory’s 2014-2017 Strategic Plan.

The Public Health Laboratory recommended instituting regular meetings of an Environmental Health Team, modeled on the already existing “outbreak teams” that meet weekly. While the meetings would not need to be weekly, some regularly scheduled connection between environmental health system actors may be beneficial.

**Arsenic in Water Discussion and Scenario**

Participants discussed the prevalence of arsenic in well water to illustrate the difficulty of addressing a wide spread environmental health risk. There are no state standards for quality of private water, and there is no requirement to test wells for the presence of arsenic. Participants noted that there were efforts to recommend water testing when homes were sold, but a realtor in attendance noted that required tests delay transactions. Additionally, banks do not consider arsenic in the water when weighing mortgage-lending risks. Because there is no requirement, people selling their homes rarely test or reveal results on their well water. Further, home inspectors do not typically ask about private well water testing. Participants suggested working with partners — banks, real estate agencies, home inspectors, and well water-testing companies — to see if any actions could remove barriers and increase the number of tests in New Hampshire.

For homes not on the market, participants reviewed a range of laboratory testing approaches, communication avenues, and remediation options. Once a well is tested, homeowners may not understand what to do with laboratory results. There are many different laboratory tests and treatment methods, including remediation options with high costs to implement. A DES engineer is available to consult with, and DES fact sheets are available, but the resident must actively seek out these resources as the agency does not receive direct information to contact residents. Consequently, there were questions concerning how often the public reads DES fact sheets and how well they are understood.

During environmental health investigations, there is also uncertainty surrounding the level of interaction and follow-up with the affected community. For example, while testing for arsenic in private well water, it was unclear what level of follow-up occurs with a homeowner should there be elevated levels of arsenic. Well tests are private to the homeowner, suggesting an inability to share information widely or across agencies. Hence, DES and Laboratory staff does not publicly release well-testing results. While they can call local public health officers to inform them of a well in their area with high levels of arsenic generally, they cannot provide specific information on the property or the test results. Moreover, there is a hesitancy to alert the wider community, such as neighbors, of environmental issues that may cross property lines given the inherent “privacy” of the test.

The Toxic Metals Superfund program at Dartmouth College has been working to overcome the barriers to testing and remediation by providing outreach and education to community regarding the importance of testing and surveying homeowners regarding their water
testing practices. In addition, State activities include the development of an online tool for homeowners to assess results, provision of test kits to municipal health officers and the transport of samples to laboratories for testing. Coordinated testing events in communities with local health officers, town halls and municipalities have worked well as neighbors can encourage each other to test their water and because test kits and samples can be distributed and collected locally.

Participants then worked through a hypothetical situation to show how different agencies might respond to possible arsenic contamination (See Appendix M). In New Hampshire, if people want to test their well water for arsenic, they can choose private or public laboratories. That choice may determine the kinds of actions the public environmental and health agencies can take to respond to concerns.

If the resident chooses a private laboratory, and finds high contamination, it is likely, but not certain, that the private testing company will suggest a second test at a public health laboratory. The private company may also refer the resident to the Department of Environmental Services to review the meaning of the tests and their options. However, even with a very high level, and as stated above, the DES will not receive the rest results from the private company in order to recommend further community screening. Consequently, if a resident uses a private laboratory and they do not contact the DES or DPHS, it is unlikely a government agency will ever learn of the testing or the result. In this instance, the state’s ability to help its residents is severely limited.

Conversely, if the public health laboratory tests the well water and finds a high level of arsenic, it is more likely that other public health agencies will be involved. Participants explained that there is no protocol for how and when to involve risk assessors, the laboratory, medical professionals, or public health officers. However, they stressed that informal networks and relationships created a responsive system for arsenic concerns.

Participants suggested several ideas to improve the system. One idea related to DES fact sheets meant for the public, which the agency routinely updates. This provides an opportunity for community review to determine their effectiveness and clarity of the literature. Participants also suggested more education and outreach to medical professionals to ensure that they know the early symptoms of environmental exposures, like arsenic, and contact the appropriate agency, like the state laboratory or DES for further information.

Several community participants encouraged close integration with the poison control centers and 211 hotlines so that people who called received accurate and effective referrals. Finally, participants agreed that capturing the best practices for formalizing protocols may improve state engagement on issues like well-water testing. Unlike a food contamination incident (see scenario below), mobilizing the environmental health sector would rely largely on personal relationships and connections. While effective in the short-term, as individuals leave their current positions, such personal relationships may be lost.
**Food Contamination Scenario**

Participants followed the arsenic contamination scenario by discussing a food contamination hypothetical (See Appendix N). Participants explained that when a suspected outbreak occurs, two designated lead staff respond, test kits are readily available, applicable teams have clear responsibilities, and a protocol exists for organizing incident management teams. Hospitals, police, the FDA and the CDC are notified at specified times in an incident as the team examines the outbreak. In sum, the **state system for food contamination outbreaks is more formalized and automatic than for other environmental health issues.**

**Scenario Comparison**

Participants discussed the response to arsenic contamination as compared to a food contamination incident. Several participants reiterated that the policy and regulatory context created different authorities for responses. Because private well water is not regulated, municipal and state agencies must conduct more voluntary outreach to address contamination concerns. However, the state regulates food products, resulting in a system with more focused prevention efforts and contamination responses.

Participants agreed that legal policy drove the differences between the two scenarios. They suggested that wood-burning stoves, possible indoor pesticide exposures, and lead were similar to arsenic in well water—requiring more self-identification from residents in a voluntary context. **Without legal authority, it is difficult to be as coordinated as a regulated sector like food safety.**

**Closing and Evaluation**

Participants agreed that the environmental health system is well-respected and communicates well internally; however, the system relies more on relationships than clearly defined roles and activities. The differences between arsenic and food contamination illustrates that **agencies could improve their formal protocols for coordinating with each other.**

Participants also noted that **increased communication, such as the NH-Workshop, would help them identify partners to strengthen outreach and communication with the public.** Working with organizations that conduct home visits, school outreach and other health care coalitions might improve environmental health hazards prevention. Also, increasing the environmental health component for residential sale disclosures may provide opportunities to educate real estate agents, banks, and home inspectors on the risks and prevalence of issues such as arsenic in well water.

Several participants urged public and environmental health agencies to collaborate with non-governmental organizations (including environmental justice and other community organizations) and universities to improve outreach tools. Those partners may help with feedback from community users: on videos, factsheets, and other efforts. There was also agreement that collaboration with, and continuing education of, public health officers helps increase community outreach.
Themes and Lessons Applicable to Both States

Education and Understanding by the Public

Representatives in both New Hampshire and Iowa acknowledged that the public may not be adequately educated on the environmental health system, such as what constitutes environmental health or the appropriate contacts in the system. For example, New Hampshire attendees expressed concern as to whether the public read or understood facts sheets on arsenic, while in Iowa there were questions concerning points of connection between the public and the environmental health system. Both sets of attendees noted many instances of the public asking questions of the environmental health system through their own personal relationships such as neighbors, suggesting the public may not know where to start when making an environmental health inquiry.

Laboratory Services

Non-laboratory personnel and members of the public in both states expressed surprise at the breadth and depth of services that the state and local laboratories provided. In each instance, the laboratory system has opportunities to educate sister-agencies, and the public as to the services they can provide. Iowa, for example, is considering a comprehensive list of testing services offered by both the SHL and the local laboratories.

Protocols in Environmental Health

In both states, responses from the environmental health system were largely dependent on personal relationships among subject-matter experts. Unlike efforts in more regulated sectors, such as food safety, portions of the environmental health systems in Iowa and New Hampshire, such as those responding to incidents of private well contamination, lack a formality that could provide the basis of long-term, institutional relationships when individuals leave their respective positions. The states appear to respond effectively to emergency response situations, but may operate with the same efficiency in routine environmental health testing. By using the Incident Command System, or other formalized structure, as a model, the system could focus on titles and agencies, rather than individuals, thus proving more resilient to personnel changes over time.

Referrals, Tracking and Follow-up

Although each state has processes for receiving environmental health questions and issues from the public, neither state maintains a follow-up system to ensure concerns are appropriately addressed and closed. Attendees in both meetings suggested opportunities to utilize the state’s poison control center, 211/311 information system, or other tracking system to ensure follow-up for environmental health questions. Additionally, such a system could help determine the public’s level of understanding concerning information returned by the state and provide feedback and evaluation. In this way, agencies can better measure not only community needs, but also comprehension of fact sheets, technical information, or remediation options.
Improving Future Workshops

Each workshop identified opportunities to improve potential future workshops in other jurisdictions:

- Investigate opportunities to make it easier to attend meetings, such as through video-conferencing. This would be especially important to community representatives who may not be able to travel or attend an all-day meeting.
- Consider inviting representatives from states planning to host a workshop to attend a nearby state meeting for the experience of participating before hosting.
- Follow-up with the people unable to attend (in this case, epidemiologists in New Hampshire and legislators in Iowa).
- Include the Agency for Toxic Substances and Disease Registry in the discussions in addition to other government representatives.
- Consider better ways to engage concerned community members in the meeting and the process.
- Clearly define the Environmental Health system at each workshop.

Because there was interest by other states during and after the RFP process, there are opportunities to expand this effort into more states. By expanding, further data points concerning gaps in the environmental health system can be identified and addressed. Moreover, the lessons learned from these meetings can provide the basis for increasing the effectiveness and focus of the conversation in future sessions.

Future Directions

Based on the results of these meetings, the host states, APHL, and CDC can consider engaging in the following general efforts to improve statewide environmental health systems:

- Engage in efforts to improve public education regarding environmental health, such as the Frameworks Institute, gathering feedback on fact sheets, needs assessments, and related efforts. In New Hampshire, direct outreach with people known to use the factsheets may provide opportunities for revisions and improvements. Other opportunities for outreach include state and county fairs, collaboration with community organizers for healthy home testing (such as New Hampshire’s water testing events), and connecting with non-traditional partners in the real estate or medical community.
- Formalize environmental health system protocols for communication and response efforts. Adapting the ICS structure or the food safety response structure in NH may provide a basis for identifying specific roles and responsibilities within the environmental health system.
- Form cross-agency environmental health teams that meet on a regular basis to
discuss current issues. States should consider including members of the public to create a direct line of feedback to the state agencies.

- Learn about poison control centers, non-emergency citizen-support centers, or similar systems to track and conduct follow-up on public inquiries into the environmental health system.

- Publicize laboratory services at both state and local levels to provide information to those needing analytical services. The laboratories have a number of unknown capabilities that can be promoted to sister agencies and the general public.

- Both Iowa and New Hampshire recommends that APHL continue circulating best practices and maintaining communication among stakeholder groups.

**Conclusion**

Overall, both the hosts and attendees received value from planning and participating in these statewide strategy meetings. Both states used the meeting to provide cross-agency information concerning the capabilities and expertise available in offices with responsibility for environmental health issues. Additionally, both Iowa and New Hampshire identified opportunities to increase the utility of the environmental health system to the public — the “customers” of environmental health.
Appendix A: APHL Request for Proposals

Request for Proposals

STATEWIDE STRATEGY MEETINGS FOR CROSSCUTTING ENVIRONMENTAL HEALTH ISSUES

www.aphl.org

8515 Georgia Ave, Suite 700
Silver Spring, MD  20910

December 2, 2013
Appendix A: APHL Request for Proposals

Objective

The Association of Public Health Laboratories (APHL) seeks responses to this Request for Proposals from APHL members who can convene and host a statewide, cross-agency, systems meeting to engage community residents on environmental health issues. The purpose of the meeting should be to develop ideas for improving the environmental health system in their state.

The ultimate goal of this project is to improve community access to the environmental health system, in particular the capabilities of public health laboratories. Through the interactions of meeting participants, and ideas and actions items captured in after-action reports, the end result will be a multi-disciplinary framework for improving the environmental health system, especially as it impacts community access to public health & environmental laboratories. Findings will be developed into models for systems change, adaptable by government systems and communities, and disseminated to APHL members as well as through partner organizations.

Through funding from CDC, APHL will pay for expenses, up to $10,000 each, and work with two members to conduct two meetings this year. The meetings and after-action reports shall be completed no later than June 30, 2014.

Requesting Organization

APHL works to safeguard the public's health by strengthening public health laboratories in the United States and across the world. In collaboration with members, APHL advances laboratory systems and practices, and promotes policies that support healthy communities. Its membership includes state and local public health laboratories, environmental laboratories and others that conduct testing of public health significance. Individuals and international representatives also participate in the association.

APHL is a non-profit, 501(c)(3) organization with a history of over fifty years. APHL is located in Silver Spring, MD.

Background

APHL seeks to improve communication and collaboration between public health & environmental agencies, governmental laboratories, partner organizations and community groups to address gaps in environmental health investigations and surveillance.

APHL will collaborate with two members to convene two separate meetings in order to develop statewide strategies and models. These meetings should:

- Identify and prioritize community environmental health concerns that can be (at least partially) addressed by public health laboratories.
- Define and evaluate existing ways for communities to engage the environmental health system, particularly the laboratory.
- Explore opportunities for enhancement or improvement of the system.
Appendix A: APHL Request for Proposals

- Identify effective outreach and engagement techniques to determine if they can be replicated.

The meetings should create collaborative opportunities with relevant public health, environmental, community, academic, clinical, emergency response and business partners, with attention to engagement of traditionally under-served and under-represented groups. The meetings should utilize multiple methods of engagement and communication when conducting outreach to diverse communities, to meet the needs of individuals of differing ages, gender, economic status and culture.

The goals of each meeting should be to:

1. Connect state government offices with environmental health responsibilities, including laboratories, epidemiologists, health directors, toxicologists and regulators;
2. Connect communities with their environmental health system, focusing on how the laboratory can provide important testing;
3. Address community environmental health concerns, especially in low-income or minority populations; and
4. Improve the health of vulnerable populations and reduce health disparities.

Under the host’s direction, APHL will provide the funding for meeting facilitation limited expenses (such as meals during the sessions) for each strategy meeting. APHL will provide these costs up to $10,000 per state and will directly pay for such expenses (i.e., APHL is not providing money directly to states through this RFP).

Project Design

Each of two states will host a one-day statewide, cross-agency strategy meeting. Invitees to the meeting will include senior level officials from the state and local: public health laboratory, environmental laboratory (if different), environmental health director’s office, toxicity office, health official’s office, and the department of environmental protection/quality/natural resources or environmental protection agency. The meeting invitations should also include regional representatives from the Agency for Toxic Substances and Disease Registry (ATSDR), the US Environmental Protection Agency regional office and laboratory, a National Institute for Environmental Health Sciences (NIEHS) Regional Center (if applicable), and most importantly, community organizations with a vested interest in improving environmental health in their locations. Grantees may also consider including academic, business, and environmental interests.

The host, in consultation with APHL and the meeting facilitator, will develop a meeting agenda, discussion topics and questions, and applicable presentations to help drive the discussion and the development of potential solutions and actions.

Proposed Project Timeline

Interested Parties should consider the following timeline for their project:
Appendix A: APHL Request for Proposals

<table>
<thead>
<tr>
<th>Deliverable</th>
<th>Proposed Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>RFP Released</td>
<td>December 2, 2013</td>
</tr>
<tr>
<td>Letters of Intent Due</td>
<td>December 16, 2013</td>
</tr>
<tr>
<td>RFP Responses Due</td>
<td>January 2014</td>
</tr>
<tr>
<td>Meeting Dates</td>
<td>February-April 2014</td>
</tr>
<tr>
<td>After-Action Report Complete</td>
<td>By June 30, 2014</td>
</tr>
</tbody>
</table>

APPLICATION PROCESS

Letter of Intent
Members who might be interested in convening and hosting a statewide meeting should send APHL a brief letter indicating your interest. The Letter of Intent does not need to address any of the substantive portions of the RFP. States who send in a Letter of Intent will be invited to participate in a conference call. The letters of intent are due on December 16, 2013.

Conference Call
APHL will host a conference call with any interested members. During the conference call APHL will discuss the history and the goals of the project. The conference call will also provide more details on the requirements for the request for proposals. The conference call will be on December 20, 2013, time TBD.

Response to the Request for Proposals
Respondents are asked to submit a proposal not to exceed seven pages. The proposal should include the following sections:

1. Why you are interested in conducting a statewide strategy meeting;
2. Your experience conducting meetings with a variety of stakeholders;
3. An overview of your work in public health and environmental health surveillance, including biomonitoring;
4. A description of at least one community-based environmental health concern in your state;
5. Your contacts and relationships with:
   - Community groups or the public
   - Centers for Disease Control and Prevention
   - National Institute of Environmental Health Sciences
   - Agency for Toxic Substances and Disease Registries
   - Environmental Protection Agency regional offices and laboratories
   - Health officials in your jurisdiction
   - Epidemiologists in your jurisdiction
   - Toxicologists in your jurisdiction
   - Environmental laboratories, and
   - Business, academic, and environmental organizations in your state; and
6. Your capacity to convene and host the meeting including the necessary staffing, your access to meeting space, your access to conferencing support including audiovisual equipment, and other necessary tools.
Appendix A: APHL Request for Proposals

Request for Proposal Timeline

<table>
<thead>
<tr>
<th>Deliverable</th>
<th>Dates Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>APHL releases RFP</td>
<td>December 2, 2013</td>
</tr>
<tr>
<td>Letter of Intent due</td>
<td>December 16, 2013</td>
</tr>
<tr>
<td>Interested parties call held ((866) 524-9616 Passcode: 4947803)</td>
<td>December 20, time TBD</td>
</tr>
<tr>
<td>Proposals due to APHL Office (5:00PM ET)</td>
<td>January 8, 2014</td>
</tr>
<tr>
<td>Review of proposals</td>
<td>January 24, 2014</td>
</tr>
<tr>
<td>Selection of two states announced</td>
<td>February, 2014</td>
</tr>
</tbody>
</table>

Evaluation Criteria

The responses to this RFP will be evaluated using the criteria detailed below. **Special attention will be paid to your ability to contact and obtain the participation of the offices and organizations listed above.**

Responses will be evaluated based on the following criteria:

<table>
<thead>
<tr>
<th>Project Objectives</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access to and ability to obtain senior-level participation from the organizations listed</td>
<td>25%</td>
</tr>
<tr>
<td>Experience with cross-agency meetings</td>
<td>15%</td>
</tr>
<tr>
<td>Description of community-based environmental health concerns in your state</td>
<td>15%</td>
</tr>
<tr>
<td><strong>Section Total</strong></td>
<td>55%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>General Knowledge</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Staffing capability</td>
<td>10%</td>
</tr>
<tr>
<td>Response content, format and packaging</td>
<td>15%</td>
</tr>
<tr>
<td><strong>Section Total</strong></td>
<td>25%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Implementation Capacity</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Proximity of regional offices, state laboratories, and related invited parties to meeting location</td>
<td>10%</td>
</tr>
<tr>
<td>Technical capabilities of meeting space</td>
<td>10%</td>
</tr>
<tr>
<td><strong>Section Total</strong></td>
<td>20%</td>
</tr>
</tbody>
</table>

Deadline for Proposal: January 8, 2014 at 5:00 pm ET. No response will be accepted after 5:00 pm ET.
Appendix A: APHL Request for Proposals

Submit proposal by email or mail to:

Michael Heintz
Senior Specialist, Environmental Laboratories
Association of Public Health Laboratories
8515 Georgia Ave, Suite 700
Silver Spring, MD  20910
240.485.2786
Michael.heintz@aphl.org
### CONFIRMED ATTENDEES

<table>
<thead>
<tr>
<th>Last Name</th>
<th>First Name</th>
<th>Agency</th>
<th>In attendance?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bain</td>
<td>Allie</td>
<td>Iowa Cancer Consortium</td>
<td></td>
</tr>
<tr>
<td>Birkhoff</td>
<td>Juliana</td>
<td>Meeting Facilitator</td>
<td>x</td>
</tr>
<tr>
<td>Beardsley</td>
<td>Doug</td>
<td>Johnson County Public Health</td>
<td>x</td>
</tr>
<tr>
<td>Becker</td>
<td>Jeremy</td>
<td>Polk County Environmental and Public</td>
<td></td>
</tr>
<tr>
<td>Bolkcom</td>
<td>Sen. Joe</td>
<td>State of Iowa Senate</td>
<td>out due to extended legislative session</td>
</tr>
<tr>
<td>Bottei</td>
<td>Edward</td>
<td>Iowa Statewide Poison Control</td>
<td>x</td>
</tr>
<tr>
<td>Davis</td>
<td>J. Michael</td>
<td>U.S. Environmental Protection Agency</td>
<td>x</td>
</tr>
<tr>
<td>Dvorsky</td>
<td>Sen. Bob</td>
<td>State of Iowa Senate</td>
<td>out due to extended legislative session</td>
</tr>
<tr>
<td>Fitzsimmons</td>
<td>Catharine</td>
<td>Iowa Department of Natural Resources</td>
<td>out due to extended legislative session</td>
</tr>
<tr>
<td>Fuortes</td>
<td>Lar</td>
<td>College of Public Health</td>
<td>teleconference</td>
</tr>
<tr>
<td>Grapp</td>
<td>Shelli</td>
<td>Iowa Department of Natural Resources</td>
<td>x</td>
</tr>
<tr>
<td>Greenberg</td>
<td>Rachel</td>
<td>State Hygienic Laboratory at the University of Iowa</td>
<td>x</td>
</tr>
<tr>
<td>Hanft</td>
<td>Brian</td>
<td>Cerro Gordo County Department of Public</td>
<td>x</td>
</tr>
<tr>
<td>Hodina</td>
<td>Jim</td>
<td>Linn County Department of Public</td>
<td></td>
</tr>
<tr>
<td>Ibarra</td>
<td>Hector</td>
<td>US Department of Education</td>
<td>x</td>
</tr>
<tr>
<td>Jacoby</td>
<td>Rep. Dave</td>
<td>State of Iowa House of Representatives</td>
<td>out due to extended legislative session</td>
</tr>
<tr>
<td>Jones</td>
<td>Christi</td>
<td>Center for Disease Control and Prevention</td>
<td>x</td>
</tr>
<tr>
<td>Knight</td>
<td>Travis</td>
<td>Iowa Department of Agriculture and Land</td>
<td>x</td>
</tr>
<tr>
<td>Kostle</td>
<td>Pam</td>
<td>State Hygienic Laboratory at the University of Iowa</td>
<td>x</td>
</tr>
<tr>
<td>Lacina</td>
<td>James</td>
<td>Johnson County Department of Public</td>
<td>x</td>
</tr>
<tr>
<td>Latshaw</td>
<td>Megan</td>
<td>Association of Public Health Laboratories</td>
<td></td>
</tr>
<tr>
<td>Linnenbrink</td>
<td>Larry</td>
<td>Scott County Environmental Health</td>
<td>x</td>
</tr>
</tbody>
</table>
## Appendix B: Iowa Attendee List

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Affiliation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mandernach</td>
<td>Steven</td>
<td>Iowa Department of Inspections and Appeals</td>
</tr>
<tr>
<td>Mascher</td>
<td>Rep. Mary</td>
<td>State of Iowa House of Representatives</td>
</tr>
<tr>
<td>Mattson</td>
<td>Alyssa</td>
<td>State Hygienic Laboratory at the University of Iowa</td>
</tr>
<tr>
<td>Mincer-Hansen</td>
<td>Mary</td>
<td>Des Moines University</td>
</tr>
<tr>
<td>Mollenhauer</td>
<td>Pam</td>
<td>State Hygienic Laboratory at the University of Iowa</td>
</tr>
<tr>
<td>Moody</td>
<td>Jeneane</td>
<td>Iowa Public Health Association</td>
</tr>
<tr>
<td>Nassif</td>
<td>Julie</td>
<td>New Hampshire Public Health Laboratories</td>
</tr>
<tr>
<td>Northy</td>
<td>Bill</td>
<td>Iowa Department of Agriculture and Land</td>
</tr>
<tr>
<td>Reiter-Kintz</td>
<td>Wanda</td>
<td>State Hygienic Laboratory at the University of Iowa</td>
</tr>
<tr>
<td>Robinson</td>
<td>Rick</td>
<td>Farm Bureau</td>
</tr>
<tr>
<td>Rosenberg</td>
<td>Ralph</td>
<td>Iowa Environmental Council</td>
</tr>
<tr>
<td>Rubin</td>
<td>Bonnie</td>
<td>State Hygienic Laboratory at the University of Iowa</td>
</tr>
<tr>
<td>Schnoebelen</td>
<td>Douglas</td>
<td>IIHR Hydroscience &amp; Engineering</td>
</tr>
<tr>
<td>Schueller</td>
<td>Michael</td>
<td>State Hygienic Laboratory at the University of Iowa</td>
</tr>
<tr>
<td>Sharp</td>
<td>Ken</td>
<td>Iowa Department of Public Health</td>
</tr>
<tr>
<td>Simmons</td>
<td>Don</td>
<td>State Hygienic Laboratory at the University of Iowa</td>
</tr>
<tr>
<td>Stolte</td>
<td>Joelle</td>
<td>Polk County Health Department</td>
</tr>
<tr>
<td>Stutsman</td>
<td>Rep. Sally</td>
<td>State of Iowa House of Representatives</td>
</tr>
<tr>
<td>Walsh</td>
<td>Sophia</td>
<td>Cerro Gordo County Department of Public</td>
</tr>
<tr>
<td>Weyer</td>
<td>Peter</td>
<td>Center for Health Effects of Environmental</td>
</tr>
<tr>
<td>Wichman</td>
<td>Michael</td>
<td>State Hygienic Laboratory at the University of Iowa</td>
</tr>
</tbody>
</table>

27 total
OBJECTIVE:
Strategize methods of improving the environmental health system in Iowa and enhancing community access to the capabilities of public health laboratories.

GOALS:
1. **Identify and prioritize** community environmental health concerns that can be (at least partially) addressed by public health labs.
2. **Define and evaluate** existing ways for communities to engage the environmental health system, particularly the laboratory.
3. **Explore opportunities** for enhancement or improvement of the system, focusing on how the laboratory can provide important testing for communities, improve the health of vulnerable populations, and reduce health disparities.
4. **Determine techniques** for effective outreach and engagement that can be replicated.

ACCESSIBILITY
Individuals with disabilities are encouraged to attend all University of Iowa-sponsored events. If you are a person with a disability who requires a reasonable accommodation in order to participate in this program, please contact the State Hygienic Laboratory in advance at 319-335-4454.
# AGENDA

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic Objective and Activity</th>
<th>Lead</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30 am</td>
<td>Doors Open (Breakfast Provided)</td>
<td></td>
</tr>
<tr>
<td>8:55 am</td>
<td>Welcome</td>
<td>Wichman</td>
</tr>
<tr>
<td>9:00 – 9:30 am</td>
<td><strong>Opening</strong></td>
<td>Facilitator</td>
</tr>
<tr>
<td></td>
<td>• Introductions and housekeeping</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Review goals, agenda and workshop approach</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Review ground rules</td>
<td></td>
</tr>
<tr>
<td>9:30 – 10:00 am</td>
<td>Icebreaker/audience participation</td>
<td>Facilitator</td>
</tr>
<tr>
<td>10:00 – 11:15 am</td>
<td><strong>Interactive Hypothetical Scenario</strong></td>
<td>Wichman/Kostle</td>
</tr>
<tr>
<td></td>
<td>• <strong>Objective:</strong> Define and evaluate existing ways for</td>
<td></td>
</tr>
<tr>
<td></td>
<td>communities to engage the environmental health system,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>particularly the laboratory.</td>
<td></td>
</tr>
<tr>
<td>11:15 – 11:45 am</td>
<td>Lunch (provided)</td>
<td></td>
</tr>
<tr>
<td>11:45 am – 12:15 pm</td>
<td><strong>Optional tour of Ankeny State Hygienic Laboratory</strong></td>
<td>Mollenhauer/Simmons</td>
</tr>
<tr>
<td>12:15 – 1:45 pm</td>
<td><strong>Actual Scenario</strong>- Arsenic contamination in well water in</td>
<td>Wichman/Hanft</td>
</tr>
<tr>
<td></td>
<td>Cerro Gordo County</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• <strong>Objective:</strong> Review process model, define and evaluate</td>
<td></td>
</tr>
<tr>
<td></td>
<td>existing ways for communities to engage the environmental</td>
<td></td>
</tr>
<tr>
<td></td>
<td>health system, particularly the laboratory.</td>
<td></td>
</tr>
<tr>
<td>1:45 – 2:00 pm</td>
<td>Break (refreshments provided)</td>
<td></td>
</tr>
</tbody>
</table>
## Appendix C: Iowa Final Agenda

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic Objective and Activity</th>
<th>Lead</th>
</tr>
</thead>
<tbody>
<tr>
<td>2:00 – 3:15 pm</td>
<td>Discuss Process to Reach Objectives</td>
<td>Wichman/Facilitator</td>
</tr>
<tr>
<td></td>
<td>- <strong>Objective:</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Discuss best practices</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Identify gaps and constraints</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Identify necessary resources</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Develop replicable model</td>
<td></td>
</tr>
<tr>
<td>3:15 – 3:25 pm</td>
<td>Break</td>
<td></td>
</tr>
<tr>
<td>3:25 – 4:15 pm</td>
<td>Next Steps and Action Items</td>
<td>Wichman/Facilitator</td>
</tr>
<tr>
<td></td>
<td>- <strong>Objective:</strong> ensure sustainability and momentum for group</td>
<td></td>
</tr>
<tr>
<td>4:15 – 4:30 pm</td>
<td>Evaluation and Adjourn</td>
<td></td>
</tr>
</tbody>
</table>

Thank you to our participants!

Sincerely,

State Hygienic Laboratory at the University of Iowa
Association of Public Health Laboratories
Appendix D: Iowa Mercury Presentation

Exercise Goals

1. Identify and prioritize community environmental health concerns that can be (at least partially) addressed by public health laboratories.
2. Define and evaluate existing ways for communities to engage the environmental health system, particularly the laboratory.
3. Explore opportunities for enhancement or improvement of the system, focusing on how the laboratory can provide important testing for communities, improve the health of vulnerable populations and reduce health disparities.
4. Determine techniques for effective outreach and engagement that can be replicated.

Purpose of Exercise

• To strategize/identify methods of improving the environmental health system in Iowa
• To enhance community access to the capabilities of public health laboratories

Exercise Objectives

• Engage stakeholders in an interactive scenario involving environmental health concerns
• Utilize scenario to stimulate development of a model for addressing environmental health concerns for Iowans and the stakeholders that serve them

Exercise Organization

• Background information
• Season specific information
• Health concerns
• Inquiry
• Investigation
• Outcome

DISCLAIMER

This scenario has been developed as a plausible event, however, it is fiction, though based on some actual events. Names, characters, businesses, organizations, places, events and incidents either are the product of the author’s imagination or have been changed for dramatic purposes.
Appendix D: Iowa Mercury Presentation

Framework for Discussion

- What process is in place to address each step of the scenario?
- What process should be in place to address the concerns presented in the scenario? What needs to be changed? (eg. policy, regulation, collaboration)
- Sustainability of a model

NATIONAL NEWS

- Washington National Monument re-opens
- Affordable Care Act impact on healthcare access continues to evolve
- Midwest Economic Survey Index rises slightly
- Cubs continue to win

STATE NEWS

Fish exceed mercury levels in east Iowa

The DNR and the Iowa Department of Public Health (IDPH) recommend that individuals should consume no more than one meal (6 to 7 ounces) per week of bass, walleye or other predator fish caught from the following waters:
- Lake Iowa in Iowa County near Milersburg;
- The Turkey River in Clayton County from its confluence with the Mississippi River 21 miles upstream to confluence with the Voige River near Garber;
- The Iowa River from the upper end of Coralville Reservoir at Hwy. 218 in Johnson County 178 miles upriver to the dam at Iowa Falls in Hardin County.

LOCAL NEWS

- Original plans for a waste transfer station changed to incinerator
- Waste incinerator (initially to be a waste transfer station) begins operation after receiving all permits
- Air testing results available

LOCAL NEWS

- New housing area established for Bhutanese refugees at Lutheran church camp outside of Swisher
- Kale Fish Farm closing prompts donation of fish pond to Lutheran church camp to provide training for refugees
Appendix D: Iowa Mercury Presentation

Last few years brought unusual weather—winds from the east rather than prevailing westerlies.

<table>
<thead>
<tr>
<th>City</th>
<th>Sky/WX</th>
<th>TMP</th>
<th>DP</th>
<th>RH</th>
<th>WIND</th>
<th>Press</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cedar Rapids</td>
<td>MOSUNNY</td>
<td>65</td>
<td>15</td>
<td>61</td>
<td>ENE 10</td>
<td>29.93 R WC1</td>
</tr>
<tr>
<td>Charles City</td>
<td>MIX PCPN</td>
<td>65</td>
<td>16</td>
<td>68</td>
<td>ESE 18</td>
<td>28.89</td>
</tr>
<tr>
<td>Clinton</td>
<td>MOSUNNY</td>
<td>68</td>
<td>18</td>
<td>64</td>
<td>E12</td>
<td>29.93 R WC1</td>
</tr>
<tr>
<td>Dubuque</td>
<td>MOSUNNY</td>
<td>67</td>
<td>16</td>
<td>68</td>
<td>ENE 10</td>
<td>29.93 R WC1</td>
</tr>
<tr>
<td>Monticello</td>
<td>MOSUNNY</td>
<td>66</td>
<td>17</td>
<td>68</td>
<td>ENE 10</td>
<td>29.93 R WC1</td>
</tr>
<tr>
<td>Oelwein</td>
<td>MOSUNNY</td>
<td>67</td>
<td>18</td>
<td>69</td>
<td>E12</td>
<td>29.93 R WC1</td>
</tr>
<tr>
<td>Waterloo</td>
<td>MIX PCPN</td>
<td>65</td>
<td>18</td>
<td>74</td>
<td>ENE 10</td>
<td>29.93 R WC1</td>
</tr>
</tbody>
</table>

April 2014

Community Health Free Clinic—Cedar Rapids

- A 9 yo male Bhutanese student attending College Community School District was referred to the clinic with the following symptoms:
  - Abdominal pain occurring over a couple of months with reduced appetite and some weight loss, but no vomiting or diarrhea
  - Recent pain in extremities
  - Fatigue
- Inconclusive diagnosis

April 1, 2014

Free Medical Clinic—Iowa City

- A 12 yo Bhutanese female presented with the following symptoms:
  - Abdominal pain occurring over a period of time
  - Recent pain and sensitivity upon palpation in extremities
  - Fatigue
- Inconclusive diagnosis

April 2, 2014

Iowa Governor’s Conference Public Health

Making Connections: Partnerships for Better Health Outcomes

Networking Reception

Johnson County

Linn County

April 1-2, 2014
Appendix D: Iowa Mercury Presentation

**QUESTIONS**

- At this time, is there any action that should be considered from:
  - Healthcare provider
  - Local agencies
  - State agencies
  - Federal agencies

**Additional Concerns**

- Several more children present to College Community school nurse with symptoms of stomach pain and extremity pain
- College Community School District contacts State Hygienic Laboratory (SHL)

**SHL Contacts Poison Control**

- Dr. Bottei suggests Mercury as a possibility

**SHL**

- Returns call to school nurse suggesting the children get medical evaluations and that the school should contact local Public Health Department
Appendix D: Iowa Mercury Presentation

School Nurse
Contacts Linn County Public Health Department, where the school is physically located.

QUESTIONS
- Are the school nurse’s actions as you would anticipate?
  - If not, what would you suggest?
- Is SHL’s action as you would anticipate?
  - If not, what would you suggest?

Investigation
- Linn County begins investigation
- Children live in Johnson and Iowa County, in addition to Linn County.

Population Effected
- Majority of children affected are from Bhutanese population
- Large volumes of fish consumed from both the pond on Church camp property and the nearby Iowa River
- Some adults may be ill
### Appendix D: Iowa Mercury Presentation

#### Questions

- What should be the next steps?
- How will SHL be involved?
- Who will be talking to hospitals and clinics to determine if other cases exist?

#### County Requests Assistance

Iowa Department of Health is requested to provide assistance for an investigation

May 1, 2014

#### Clinical Samples

Blood samples collected for mercury analysis are sent to various clinical labs. 

*Results higher than expected in normal population*

May 5-9, 2014

#### Survey of Area

May 12, 2014
Appendix D: Iowa Mercury Presentation

Eastern Iowa Airport
Cedar Rapids, IA

The Eastern Iowa Airport is a small-hub airport in Cedar Rapids, Iowa, with 35 daily departures including service from American, United, Delta, Frontier and Allegiant Air.

The Airport also features increasing cargo activity with DHL, UPS, and Fed Ex, and an active general aviation community. The Airport is owned by the City of Cedar Rapids and operated by the Cedar Rapids Airport Commission.

- 36,000 tons of air freight and cargo annually
- Total passengers in 2013 – 1,042,291

May 12, 2014

Hi G Incinerator
Rural Swisher, IA

- Original site was determined to be a waste transfer site
- Increased waste streams indicated need for incinerator
- Permit obtained from IDNR after all testing completed

May 12, 2014

Iowa Department of Inspection and Appeals

- Conducted inspections of Kale Fish Farm on several occasions prior to closure
- Collected fish for metals testing, submitted to SHL
- All results normal prior to closing

May 12, 2014

MCBIA
Walford, IA

- Company offers newer electronic equipment after refurbishment, cleaning and storage device sanitization.
- Older or broken equipment is de-manufactured into individual components:
  - 29 specific types
  - Metals to local scrap
  - Copper for reuse
  - Plastics sent for granulation for recycled plastic
  - Printed circuit boards sent to smelters for extraction of precious metals

May 12, 2014

Kale Fish Farm
Amana, IA

- Closed due to major temperature and precipitation swings and next generation lack of interest
- Leading up to the closure, fish donated to area church properties

May 12, 2014

KGAN News Feature Story

- Eastern Iowa population of Bhutanese are becoming ill
- Is someone poisoning them?
- Why isn’t the government assisting?

May 19, 2014
Appendix D: Iowa Mercury Presentation

QUESTIONS

- Who will address this problem with the media?
- What is known at this time?
- What are potential sources of mercury?
- If poisoning is due to mercury results are often time-delayed (like most poisonings).
- What agencies/resources will need to be consulted at this time?
  - County Health Department
  - IDPH
  - IDNR
  - IDA
  - Poison Control
  - EPA

Mercury Deposition

http://www.arl.noaa.gov/mercury.php

Historical Mercury Levels

http://www.arl.noaa.gov/Mercury_maws.php

Location of ARL’s three long-term speciated atmospheric mercury measurement sites, overlaid on a map of large mercury point sources (for 2002) based on data from the U.S. EPA and Environment Canada

Historical Mercury Levels in Iowa

<table>
<thead>
<tr>
<th>Plant</th>
<th>Source Company</th>
<th>Units</th>
<th>Estimated Total Mercury (Tg)</th>
<th>Estimated Mercury (Tg) 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iowa Power Co</td>
<td>Tennessee Valley Authority</td>
<td>Middletown, IA</td>
<td>276</td>
<td>256</td>
</tr>
<tr>
<td>Coal Plants</td>
<td>Middletown Power Plant</td>
<td>Middletown, IA</td>
<td>173</td>
<td>256</td>
</tr>
<tr>
<td>Coal Plants</td>
<td>Middletown Power Plant</td>
<td>Middletown, IA</td>
<td>173</td>
<td>256</td>
</tr>
<tr>
<td>Coal Plants</td>
<td>Middletown Power Plant</td>
<td>Middletown, IA</td>
<td>173</td>
<td>256</td>
</tr>
<tr>
<td>Coal Plants</td>
<td>Middletown Power Plant</td>
<td>Middletown, IA</td>
<td>173</td>
<td>256</td>
</tr>
</tbody>
</table>

IDNR conducts Stack Testing at Incinerator

- Determine stack test protection was unintentionally disconnected during full start up of incinerator
- Mercury removal was not complete

May 22, 2014
Appendix D: Iowa Mercury Presentation

SHL

- Limnology staff collect fish from pond and Iowa River
- Mercury analysis of fish conducted
- Results???

May 27, 2014

SHL

- Soil samples collected at homes of ill children and control homes within the area
- Mercury analysis of soil conducted
- Results???

June 3, 2014

QUESTIONS

- Who is handling risk communication to the community?
- What is the economic impact?
- What impact is there to policy? Are changes necessary?

Source of Mercury

- Appears to be from incinerator deposition onto soil and into local water
- Population affected consumed more fish than general population

July 7, 2014

Process

- At the end of the day we will be discussing the sustainability of the process
Appendix D: Iowa Mercury Presentation

References

- [http://www.epa.gov/wastes/hazardouswaste/airem.html](http://www.epa.gov/wastes/hazardouswaste/airem.html)
- [http://des.ah.gov/organization/divisions/air/pehh/apps/baseline-he_input.htm](http://des.ah.gov/organization/divisions/air/pehh/apps/baseline-he_input.htm)
- [http://www.usphs.gov/Atlanta/factsheet/146-00/](http://www.usphs.gov/Atlanta/factsheet/146-00/)
Appendix E: Cerro Gordo County (Iowa) Presentation

Elevated Arsenic in Groundwater

Developing and Strengthening Relationships to remediate an Environmental Health Crisis

Brian Hanft & Sophia Walsh

1980's-1990's

- Routine testing by Iowa DNR reveals the presence of arsenic at the Ashley Inn and Mobile Home Park on the south side of Mason City at a level above the MCL at the time of 50 ppb

First Steps

- Initial Hypothesis:
  - Something was buried that was releasing arsenic into the water
  - Researched previous practices in the area
  - Used drilling rig to find plume or burial site

Why is there arsenic in the well water?

- Industry?
- Cemetery?
- Railroad?
- Naturally Occurring?
- Lake Pollution?
- Landfill?

Nothing Found!

Where else could it be coming from?

- Geology?
- Single Well?
- Neighborhood?
- Regional?
- Countywide?

How widespread is the problem? Are other people at risk?
2000
• Iowa Geological Survey Concludes arsenic is present in every major aquifer in Iowa

2001
• EPA sets a new MCL for municipal water supplies of 10 ppb from 50 ppb.
• 540 ppb, highest concentration of arsenic in a well in Iowa found in Cerro Gordo County
• IDNR does further investigation near two public wells just south of Mason City (one of these was the well that had 540 ppb)

What are the health issues related to arsenic in water?
• According to EPA, long-term exposure to arsenic rich water may result in:
  • Skin problems, including cancer
  • Cancers of the bladder, kidney, and lung
  • Diseases of the blood vessels of the legs and feet
  • Diabetes
  • High Blood Pressure
  • Reproductive Disorders

Experts Gather
• Paul VanDorpe (IDNR) for geological information
• State Hygienic Lab for water testing
• Cerro Gordo County Public Health
• Other IDNR experts

2003
• Approached by USGS to consider a dual partnership small scale study
• Fiscal resources were not adequate to allow Cerro Gordo County Public Health to assist with this study
• However, other opportunities would soon come

How does this affect the health of our citizens?
2003 – Cerro Gordo County Conducts Arsenic Study

- Funded by Iowa Department of Public Health
- Worked with Paul VanDorpe
- Concluded to be naturally occurring and more likely to be completed or not cased through the Lime Creek formation
- Pyrite shales may be contributing arsenic

2004

- The Department was contacted about the situation
- Neighbors notified and additional wells around Clear Lake are tested and
- Talk of follow up study, but no funding available

2004 - Arsenic Exposure

- A Cerro Gordo County woman living on the South Shore of Clear Lake develops shaking and neurological problems and goes to her doctor.
- Although Arsenic is not initially suspected, water samples are taken from the well and show levels above 10 ppb.

2007 - Policy Change is Made Locally

- Arsenic Zone Established
- Policy change requiring all new wells in the county to be tested for arsenic

2008 – SWRL2 Another Red Flag

- Half of wells tested showed detectable arsenic
- 31 counties in Iowa had As levels Above 10 ppb
What information do we have?

- 53% of wells tested show detectable levels of arsenic
- 34% of wells tested show arsenic levels above EPA’s maximum contaminate level of 10 ppb
- Many wells tested, enough to know there is a problem
- Unfortunately, not good data about well depth, casing depth, terminating aquifer, etc.

2009 - Partners Collaborate

- Loreli Kurimski – SHL  
  - had intern that had time to statistically analyze arsenic data
- Doug Schnoebelen contacted to participate
- Paul Van Dorpe already at the table

What Information do we need?

- Water chemistry
- Well data including:
  - Depth
  - Casing depth
  - Well logs
  - Rock chip samples
Appendix E: Cerro Gordo County (Iowa) Presentation

2010 – Department Receives Grant

- CG County Health received a grant from CDC to study why arsenic is present in some private drinking water supplies
- Partnerships including public and private entities were a key reason cited for funding the grant

Results

- Rock Chip Samples show arsenic is naturally occurring
- The Lime Creek Aquifer has the highest rate of water samples that contain arsenic and arsenic above the MCL
- Wells with arsenic have higher Dissolved Oxygen that may be allowing the arsenic to leach into the water
- Pyrite continues to be a potential indicator of the presence of arsenic

Project Objectives

- To enhance the understanding of arsenic contamination and its correlation to safe drinking water for people who utilize private water wells.
- To develop and implement an intervention to decrease the risk of arsenic consumption from private well drinking water

Public Awareness Campaign

- Postcards
- Billboards
- YouTube Videos
- Press Releases
  - Newspaper
  - Radio
  - Television
- Facebook, Twitter, Website
- Word of Mouth!!!

Marketing to Volunteers

- Meetings with local leaders
- Mailings with volunteer packet
- Site Visits with information packets
  - Including well owner agreement

Policy Change

- Cerro Gordo County Department of Public Health Plans on updating our well ordinance to extend the arsenic zone to include the entire county
- The Iowa Grants To Counties program is considering including arsenic testing in the free water testing program that currently can test for bacteria and nitrates at no cost to private well users.
How do we maintain momentum?

Ongoing Research

• Wells not included in the study continue to be tested
• Sharing information we have gathered and continuing to stay up to date on others’ research on arsenic in groundwater and health effects
• Additional Studies
  • Biomonitoring
  • Prediction Model
  • Others?

Publicity

• Sharing our results on a local, state, and national level
• Publish manuscripts
• Participate in Workgroups to change policy.
• Continue testing arsenic in groundwater and encourage others to do so

Questions?

Sophia Walsh
Environmental Health Specialist I
Cerro Gordo County Department of Public Health
641-421-9318
arsenic@cghealth.com
## Appendix F: New Hampshire Attendee List

Attendee List: New Hampshire Statewide Environmental Health Meeting

<table>
<thead>
<tr>
<th>Last name</th>
<th>First Name</th>
<th>Affiliation</th>
<th>phone</th>
<th>email</th>
<th>Attended</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alexakos</td>
<td>Philip</td>
<td>Manchester Health Department</td>
<td>603.628.6003 x 328</td>
<td><a href="mailto:palexako@manchesternh.gov">palexako@manchesternh.gov</a></td>
<td>x</td>
</tr>
<tr>
<td>Ayotte</td>
<td>Joseph</td>
<td>US Geological Survey</td>
<td>603.226.7810</td>
<td><a href="mailto:jayotte@usgs.gov">jayotte@usgs.gov</a></td>
<td>x</td>
</tr>
<tr>
<td>Baker</td>
<td>Brian</td>
<td>US Food and Drug Administration</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Barinelli</td>
<td>Lou</td>
<td>NH Public Health Laboratories - Environmental Chemistry</td>
<td>603.271.2994</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Bean</td>
<td>Christine</td>
<td>NH Public Health Laboratories - Director</td>
<td>603.271.4657</td>
<td><a href="mailto:clbean@dhhs.state.nh.us">clbean@dhhs.state.nh.us</a></td>
<td>x</td>
</tr>
<tr>
<td>Birkhoff</td>
<td>Juliana</td>
<td>APHL</td>
<td>703.560.6304</td>
<td><a href="mailto:juliana@jbirkhoff.com">juliana@jbirkhoff.com</a></td>
<td>x</td>
</tr>
<tr>
<td>Bomba</td>
<td>Margaret</td>
<td>NH Public Health Laboratories - Food &amp; Env Chemistry</td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Borsuk</td>
<td>Mark</td>
<td>Dartmouth College</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Burack</td>
<td>Thomas</td>
<td>NH Department of Environmental Services</td>
<td>603.271.2958</td>
<td><a href="mailto:thomas.burack@des.nh.gov">thomas.burack@des.nh.gov</a></td>
<td>x</td>
</tr>
<tr>
<td>Cahillane</td>
<td>Matthew</td>
<td>NH Division of Public Health Services - Climate Change</td>
<td>603.271.4072</td>
<td><a href="mailto:mcahillane@dhhs.state.nh.us">mcahillane@dhhs.state.nh.us</a></td>
<td>x</td>
</tr>
<tr>
<td>Casillo</td>
<td>Rick</td>
<td>The Way Home</td>
<td>603.627.3491</td>
<td><a href="mailto:rcastillo@thewayhomenh.org">rcastillo@thewayhomenh.org</a></td>
<td>x</td>
</tr>
<tr>
<td>Chatteerjee</td>
<td>Madhumita</td>
<td>NH Public Health Laboratories - Food Chemistry</td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Chawla</td>
<td>Chia-Hui</td>
<td>NH Division of Public Health Services - EPHT</td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Chormann</td>
<td>Fredrick</td>
<td>NH Department of Environmental Services</td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Colby</td>
<td>John</td>
<td>NH Department of Environmental Services</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conley</td>
<td>Ashley</td>
<td>Nashua Health Department</td>
<td>603.589.4552</td>
<td><a href="mailto:conleya@nashuanh.gov">conleya@nashuanh.gov</a></td>
<td>x</td>
</tr>
<tr>
<td>Coons</td>
<td>Marie</td>
<td>NH Public Health Laboratories - Environmental Chemistry</td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Countway</td>
<td>Sylvia</td>
<td>NH Resident</td>
<td>603.569.3648</td>
<td><a href="mailto:sylviacountway@gmail.com">sylviacountway@gmail.com</a></td>
<td>x</td>
</tr>
<tr>
<td>Countway</td>
<td>David</td>
<td>NH Resident</td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Cram</td>
<td>Morgan</td>
<td>NH Public Health Laboratories - Food Chemistry</td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Crawford</td>
<td>Steve</td>
<td>NH State Vetranarian</td>
<td>603.271.2404</td>
<td><a href="mailto:stephen.crawford@agr.nh.gov">stephen.crawford@agr.nh.gov</a></td>
<td>x</td>
</tr>
<tr>
<td>Daly</td>
<td>Elizabeth</td>
<td>NH Division of Public Health Services - Epidemiology</td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Drouin</td>
<td>Beverly</td>
<td>NH Division of Public Health Services</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dua</td>
<td>Mamta</td>
<td>NH Public Health Laboratories - LRN-C</td>
<td>603.271.4183</td>
<td><a href="mailto:mamta.dua@dhhs.state.nh.us">mamta.dua@dhhs.state.nh.us</a></td>
<td>x</td>
</tr>
<tr>
<td>Dumond</td>
<td>Michael</td>
<td>NH Division of Public Health Services - Environmental Health</td>
<td>603.271.4549</td>
<td><a href="mailto:mdumond@dhhs.state.nh.us">mdumond@dhhs.state.nh.us</a></td>
<td>x</td>
</tr>
<tr>
<td>Frey</td>
<td>Kate</td>
<td>NH Division of Public Health Services -</td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Getchell</td>
<td>Jane</td>
<td>APHL</td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Gibson</td>
<td>Rob</td>
<td>University of New Hampshire (DVM)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gordon</td>
<td>David</td>
<td>NH Department of Environmental Services - Risk Assessment</td>
<td>603.271.4608</td>
<td><a href="mailto:david.gordon@des.nh.gov">david.gordon@des.nh.gov</a></td>
<td>x</td>
</tr>
<tr>
<td>Healy</td>
<td>Stephanie</td>
<td>US Food and Drug Administration</td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Heath</td>
<td>Shelia</td>
<td>NH Public Health Laboratories - Environmental Chemistry</td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Heintz</td>
<td>Michael</td>
<td>APHL</td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Holliday</td>
<td>Mary</td>
<td>NH Public Health Laboratories - Finance</td>
<td>603.271.4450</td>
<td><a href="mailto:mholliiday@dhhs.state.nh.us">mholliiday@dhhs.state.nh.us</a></td>
<td>x</td>
</tr>
<tr>
<td>Irwin</td>
<td>Tom</td>
<td>Conservation Law Foundation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jervis</td>
<td>Judy</td>
<td>NH Health Officers Association</td>
<td>603.228.1231</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Johnson</td>
<td>Rob</td>
<td>NH Farm Bureau</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix F: New Hampshire Attendee List

<table>
<thead>
<tr>
<th>Name</th>
<th>Title and Department</th>
<th>Phone Number</th>
<th>Email</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Klevins Cynthia</td>
<td>NH Department of Environmental Services</td>
<td>603.271.4395</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lambert Thomas</td>
<td>NH Division of Public Health Services - EPHT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laskey-Rigrod  Pierce</td>
<td>NH Department of Environmental Services</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lemay Al</td>
<td>NH Division of Public Health Services</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>Lambert Thomas</td>
<td>NH Division of Public Health Services - EPHT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
<tr>
<td>McNamara Melissa</td>
<td>NH Public Health Laboratories - Radiochemistry</td>
<td>603.271.4838</td>
<td><a href="mailto:lorraine.merrill@agr.nh.gov">lorraine.merrill@agr.nh.gov</a></td>
<td></td>
</tr>
</tbody>
</table>

TOTAL 41
New Hampshire Public Health Laboratories
*Improving Environmental Health through Innovation, Practice and Policy*

9:00AM-4:00PM  
Thursday, May 1, 2014  
29 Hazen Drive Concord, New Hampshire

**Agenda**

Objectives:
- Identify and prioritize community health concerns
- Define and evaluate existing ways for the community to engage the environmental health system
- Explore opportunities for enhancement or improvement of the system
- Determine techniques for effective outreach and engagement

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic Objective and Activity</th>
<th>Materials</th>
<th>Lead</th>
</tr>
</thead>
</table>
| 9:00-9:15     | **Opening**                                            | Agenda                     | Dr. Christine Bean  
NH PHL Director  
Juliana Birkhoff  
Facilitator       |
|               | • Welcome                                              |                            |                                  |
|               | • Review agenda and workshop approach                 |                            |                                  |
|               | • Introductions                                       |                            |                                  |
| 9:15-9:30     | **Environmental Services in NH**                      | Power point presentation   | Commissioner  
Thomas Burack DES  
Juliana Birkhoff  
Facilitator       |
|               | Objective:                                            | slides                     |                                  |
|               | • *Overview of DES and shared responsibilities for environmental health in NH* |                            |                                  |
| 9:30-10:30    | **Community Health in NH**                            | Power point presentation   | Philip Alexakos MHD  
Ashley Conley and  
Heidi Peek, NHD  
Juliana Birkhoff  
Facilitator       |
|               | Objective: Highlight concerns of residents in the community; Recap of data collected in Community Health Assessment |
|               | *Facilitated discussion*                              | slides and discussion      |                                  |
|               | • Other community health concerns                     |                            |                                  |
| 10:30-10:45   | **Break**                                             |                            |                                  |
| 10:45-12:00   | **Summarize and Prioritize Community Health Concerns**| Summary sheets             | Juliana Birkhoff  
Facilitator       |
|               | Objective:                                            |                            |                                  |
|               | • Key issues/themes outlined                          |                            |                                  |
| 12:00-1:00    | **Lunch (Provided) in Atrium**                        |                            |                                  |
| 1:00-1:30     | **State Health Improvement Plan**                     | Power point presentation   | Dr. Jose Montero  
DPHS Director  
Juliana Birkhoff  
Facilitator       |
|               | Objective:                                            | slides                     |                                  |
|               | • Links to environmental health                       |                            |                                  |
### Appendix G: New Hampshire Final Agenda

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Objective</th>
<th>Presenter/Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:30-2:00</td>
<td><strong>Public Health Laboratory Capabilities</strong></td>
<td>Objective:</td>
<td>Julianne Nassif NH PHL Chemistry Program Manager</td>
</tr>
<tr>
<td></td>
<td><strong>Public Health Laboratory Capabilities</strong></td>
<td>• For environmental health monitoring</td>
<td>Dr. Christine Bean NH PHL Director</td>
</tr>
<tr>
<td></td>
<td><strong>Public Health Laboratory Capabilities</strong></td>
<td>• L-SIP Assessment for Essential Services</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Public Health Laboratory Capabilities</strong></td>
<td>Power point presentation slides</td>
<td></td>
</tr>
<tr>
<td>2:00-3:30</td>
<td><strong>Actual Scenario</strong></td>
<td><strong>Objective:</strong></td>
<td>Juliana Birkhoff Facilitator</td>
</tr>
<tr>
<td></td>
<td><strong>Actual Scenario</strong></td>
<td>• Use an actual scenario around arsenic exposure to evaluate community engagement; response;</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Actual Scenario</strong></td>
<td>• Consider other scenarios/issues to see if similar gaps exist</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Actual Scenario</strong></td>
<td>Materials for scenario-injects</td>
<td></td>
</tr>
<tr>
<td>3:30-4:00</td>
<td><strong>Next Steps and Action Items</strong></td>
<td><strong>Objective:</strong></td>
<td>Facilitator</td>
</tr>
<tr>
<td></td>
<td><strong>Next Steps and Action Items</strong></td>
<td>Ensure accountability and momentum for group</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Next Steps and Action Items</strong></td>
<td>• List of recommendations</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Next Steps and Action Items</strong></td>
<td>• Lessons learned</td>
<td></td>
</tr>
<tr>
<td>4:00-4:15</td>
<td><strong>Evaluation and Adjourn</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Local Environmental Health Practice

Partnering with the NHPHL to Protect the Public Health

Philip J. Alexakos, MPH, REHS
Chief of Environmental Health and Emergency Preparedness

Food Protection

- Participation in Routine Food Sample testing
  - Opportunity to confirm field inspection data
  - Opportunity to provide “hard evidence” of risk to public
  - Opportunity to educate food service workers

PH Intervention

- Contact with NH DHHS Infectious Disease Partners:
  - Infectious Disease Epidemiologist
  - Food Protection Section

  - Contacted Food Establishments to make sure that they did not sell (or distribute) similar products and that they sanitized all food contact surfaces and refrigerators

Surveillance Detected Contamination and Associated Recall

October 2013

- Routine Food Samples taken by MHD on October 1, 2013
  - Retail Food Market
    - Seafood Salad
    - Chicken Salad
  - Canteen Truck Commissary and Retail
    - Chicken Salad
    - Tuna Salad

Confirmatory Lab Results 10-7-13

- Both the Chicken Salad and Tuna Salad were POSITIVE for Listeria monocytogenes

- Culture Confirmed

- The Plot Thickens….
Other Partners

- State to State coordination
  - NH to Massachusetts
- State to Federal partners
  - FDA and USDA oversight of the processing facility(s)
  - Keep in Mind: This is happening in the midst of Federal Sequestration

Massachusetts Action

- On October 11, the Massachusetts Department of Public Health’s Food Protection Program acquired unopened, similar food containers from the processing facility, including chicken salad and tuna salad
- On October 22, the MA Foodborne Disease Surveillance laboratory reported that these samples were POSITIVE for LM and were an indistinguishable match to the NH samples

Processor Oversight

- USDA—“We do know that both of these (+) products are made at this DJE facility on separate equipment and in separate rooms with the only common denominator being raw non-meat ingredients
- The Facility uses an approved LM surveillance protocol

PFGE- 10-11-14

- The PFGE pattern for both food sources (chicken and seafood salad) were indistinguishable by two enzymes (see below). These isolates have been uploaded to PulseNet (Pulsenet IDs NH_1310010025 and NH_1310010027).
- These were food samples collected at two retail locations in Manchester, NH; with a common manufacturer/distributor (Boston Salad's and Provision Company Inc., P-17999, 24 Chesterton Street Boston, MA 02119).
- These isolates do not match any NH Listeria cases, but do match a Massachusetts case from December of 2012.

Recall

MHD Follow-up Sampling 10-22-14

- Retail Food Market
  - Unopened Chicken Salad
  - Unopened Buffalo Chicken Salad
- Canteen Truck Commissary and Retail
  - Opened Chicken Cranberry Salad
  - Opened Tuna Salad
- ALL Negative for LM
Lessons Learned
- Public Health is a 24/7 job!!
- It is important to follow the chain of command to assure a coordinated and comprehensive investigation
  - Especially when we have multiple jurisdictions involved
- Routine Food Sampling is an important tool in our PH tool kit

Mosquitoes in Manchester
- Since 2000 we have collected over 400,000 'blood suckers'
- We have submitted over 10,000 batches
- We collect and submit from July 1-First Freeze (budget permitting)
- Earliest positive result was in 2012 (WNV on 7/19/2012)
- When budgets are tight...
  - The "Public" values this service and has advocated for $$$ to be reintroduced into budgets

Agencies- Thanks
- Manchester Health Department
  - Environmental Health Division
- NH DHHS
  - Public Health Laboratory
  - Bureau of Infectious Disease Control
  - Food Protection Section
- MA DPH
  - Food Protection Program
  - Foodborne Disease Surveillance Laboratory
- USDA
- US FDA

Other Linkages
- Outbreak investigations
  - Environmental and Clinical Specimens
  - Outbreak Response Kit
    - Pulled Pork Incident
- Recreational Waters
  - Beaches—Fresh and Marine
- Private Well Water Analysis
  - Rn, As

Mosquito Surveillance

Future Opportunities
- Biomonitoring
  - Sensitive occupations
  - Environmental justice issues
  - Pesticides (VT)
  - Urban Gardens
- Sampling methodology
  - Training on sampling techniques and procedures
  - Expanded Environmental Analysis
    - Lead Dust
- CASPER Analysis
  - What does the public think (know) about environmental health?
    - Need to have a baseline and an opportunity to promote what we do
- EPHT / WISDOM
  - Public Access to data
Contact Information

- Phil Alexakos, MPH, REHS
- Manchester Health Department
- palexako@manchesternh.gov
Appendix J: Nashua Department of Public Health (New Hampshire) Presentation

Objectives
- Describe environmental health data collected for the 2011 Community Health Assessment.
- Describe environmental health concerns from residents in the community.
- Discuss existing challenges and barriers our local health department faces in meeting the needs of residents.
- Discuss current programs and outreach efforts on environmental health.

2011 Community Health Assessment
- Door-to-door survey
- Secondary data collected from existing databases (e.g. Behavioral Risk Factor Surveillance System, emergency department discharges)
- Focus groups
- GIS mapping

Who are we as a region?
- **Nashua**
  - 86% Caucasian
  - 80% speak only English at home
  - 9.3% have less than 9th grade education

- **Greater Nashua**
  - 92-100% Caucasian
  - 89-96% speak English only at home
  - 3%-9% have less than 9th grade education

Greater Nashua Public Health Region
Population: 205,765
Population in Nashua: 86,494

What one health issue would you fix to make Nashua a healthier place to live?
- Environmental Health: 14%
- Don't Know: 17%
- Healthcare (Access, Insurance, Other): 18%
- Physical Exercise/Nutrition/Weight: 15%
- Substance Abuse: 7%
- Child Health: 7%
- Other: 30%
Open response answers

- Cell towers in residential neighborhoods
- Allergens and pollutants
- Bed bugs
- Better parks
- Clean restaurants
- Fluoride
- Construction in neighborhoods
- Dump hazards
- Hazardous waste and chemical disposal
- Lack of sanitation in public places
- Sewer
- Keep environment clean, don’t overdevelop, gym
- recess for kids
- Parks and rec
- Break, streets, sidewalks
- Trash, litter, cleanliness of city
- Walking trails
- Water and air pollution
- Concern over water supply

Knowledge of Radon, BRFSS, 2008

<table>
<thead>
<tr>
<th>Health Condition</th>
<th>Nashua</th>
<th>95% Confidence Intervals</th>
<th>New Hampshire</th>
<th>95% Confidence Intervals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asthma</td>
<td>6.5%</td>
<td>3.3-9.7%</td>
<td>6.5%</td>
<td>5.6-7.4%</td>
</tr>
<tr>
<td>Heart Disease</td>
<td>0.6%</td>
<td>0-1.6%</td>
<td>0.8%</td>
<td>0.5-1.2%</td>
</tr>
<tr>
<td>Stroke</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0.1-1.2%</td>
</tr>
<tr>
<td>Lung Cancer</td>
<td>26.2%</td>
<td>20.5-31.8%</td>
<td>34.9%</td>
<td>33.3-36.5%</td>
</tr>
<tr>
<td>Breast Cancer</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0.3-1.2%</td>
</tr>
<tr>
<td>Emphysema</td>
<td>0.4%</td>
<td>0-1.1%</td>
<td>1.8%</td>
<td>1.3-2.2%</td>
</tr>
<tr>
<td>Other</td>
<td>4.3%</td>
<td>1.4-7.3%</td>
<td>4.7%</td>
<td>3.6-5.6%</td>
</tr>
<tr>
<td>No condition/</td>
<td>61.9%</td>
<td>55.5-68.4%</td>
<td>50.5%</td>
<td>48.8-62.2%</td>
</tr>
<tr>
<td>don’t know</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Nashua’s pre-1850 Housing Units by Census Tracts and Elevated Blood Lead Levels

Percent and Concentration of Arsenic Levels Found in Private Wells in Southern New Hampshire

Knowledge of Radon, BRFSS, 2008
Appendix J: Nashua Department of Public Health (New Hampshire) Presentation

Objectives
- Describe environmental health data collected for the 2011 Community Health Assessment.
- Describe environmental health concerns from residents in the community.
- Discuss existing challenges and barriers our local health department faces in meeting the needs of residents.
- Discuss current programs and outreach efforts on environmental health.

2011 Community Health Assessment
- Door-to-door survey
- Secondary data collected from existing databases (e.g., Behavioral Risk Factor Surveillance System, emergency department discharges)
- Focus groups
- GIS mapping

Greater Nashua Public Health Region
Population: 205,765
Population in Nashua: 86,494

What one health issue would you fix to make Nashua a healthier place to live?

- Child Health: 7%
- Substance Abuse: 7%
- Physical Exercise/Nutrition/Weight: 11%
- Environmental Health: 16%
- Don't Know: 17%
- Healthcare Access, Insurance, Other: 11%
- Other: 24%
Resident Concerns Voiced to the EHD
- Vectorborne diseases such as WNV, EEEV, Lyme Disease
- Complaints relating to illness, unsanitary practices, lack of maintenance at food establishments, pools and spas, and childcare centers
- Radon and arsenic

Partnerships
- Code Enforcement
- Fire Marshal
- Nashua Police Department
- Building Safety
- Medical/healthcare
- Universities and Colleges
- NH DES
- NH DHHS
- Dept. of Agriculture
- NHPHL
- Residents

Challenges
- Budget reductions
- Limited staffing capacity
- Legislation

Contact Information
Ashley Conley
conleya@nashunh.gov
603-589-4552
Heidi Peak
peekh@nashunh.gov
603-589-4535

Achievements
- Competent, respectful and passionate staff
- Prevention efforts on vectorborne, foodborne and waterborne diseases
- Mosquito surveillance
- Relationships with organizations and partners in the region and state
Appendix K: New Hampshire Department of Public Health Services Presentation

New Hampshire State health Improvement Plan
Jose Thier Montero, MD, IMHDDS
Director
Division of Public Health Services
New Hampshire Department of Health and Human Services

Public Health
What we as a society do collectively to assure the conditions in which people can be Healthy
Institute of medicine

Population Health – DPHS Definition
Population health is defined as the health outcomes of a group of individuals, including the distribution of such outcomes within the group. (1,2) These groups are often geographic populations such as nations or communities, but can also be other groups such as employees, ethnic groups, disabled persons, prisoners, or any other defined group.
For DPHS it is the total NH population

Determinants of Health

Many Factors Shape Health
Drivers of Health

Health Impact Pyramid

(Original Pyramid by Frieden, J.P.M.)
Appendix K: New Hampshire Department of Public Health Services Presentation

Example: Community Integrated Asthma Approach

<table>
<thead>
<tr>
<th>Community</th>
<th>Clinical</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Assessment &amp; maintenance of indoor air quality (in home/school)</td>
<td>• Medication provision &amp; reconciliation</td>
</tr>
<tr>
<td>• Patient/family education – inhaler technique – appropriate use of medication (long term vs quick relief)</td>
<td>• Develop asthma action plan</td>
</tr>
<tr>
<td></td>
<td>• Use of peak flow meter</td>
</tr>
<tr>
<td></td>
<td>• When to go to ER vs PCP</td>
</tr>
</tbody>
</table>

What do Public Health Agencies bring to the table?

- Clinical Services
- Policy
- Development
- Regulatory role

“Bully Pulpit”

- Emergency Response
- Clinical and Population Data
- Total Population Access
- Community Engagement
- Patient Safety

Demonstrate measurable improvements in the health and wellbeing of New Hampshire’s population

Source: CDC
The State Health Improvement Plan is... a collaborative effort to:
- identify, analyze, & address state health problems;
- assess applicable data;
- develop measurable health objectives & indicators;
- inventory statewide health assets & resources;
- develop & implement coordinated strategies;
- identify accountable entities;
- and cultivate public health system “ownership” of the entire process.

Themes & Strengths Assessment
- Small and healthy population
- Expertise and commitment across the public health system
  - State agency
  - Universities
  - State level organizations
  - Regions
- Public Health System capacity improvement
  - Data
  - Partnerships

State Health Assessment

Forces of Change Assessment
- State Demographic Trends
  - Aging population
  - Increased Diversity
- Economic Climate and Political Landscape
- Health System Transformation
  - Health Care Reform
  - Medicaid Care Management
  - New systems of Care: ACO, AVH, ACC
- Public Health System Capacity
- Emerging Issues
  - Influenza
  - Adaptation to Climate Change related issues
  - National momentum for integration initiatives

The framework for SHIP strategies
- Recommends prevention strategies for critical national health issues
- Evidence-based
- Brings together recommendations and goals from key federal documents
Appendix K: New Hampshire Department of Public Health Services Presentation

Injury

Where do we want to be?
- Reduce the rate of older adult fatal falls from 2010 to 2019 by 14.0 per 100,000 population.
- Reduce the rate of emergency department visits due to motor vehicle crashes in 2011-2014 by 9.4, 953.4 per 100,000 population.
- Reduce the number of suicide attempts by adolescents (self-inflicted emergency department visits) from 595 per 100,000 population.
- Reduce the suicide death rate for all suicide deaths per 100,000 population.
- Reduce the rate of unintentional poison deaths from 50.0 per 100,000 population.

Source: NH Division of Vital Records & Statistics.

Tobacco

Where do we want to be?
- Reduce cigarette smoking among adults from 2010 to 2019 by 39.1 to 28.7%.
- Reduce tobacco product use by adolescents (past 30 days) from 19.1% (2011-2014) to 21.0% by 2015 and 22.0% by 2016.
- Reduce the initiation of tobacco use among children from 8.8% (2010 to 2015) to 7.7% by 2016.
- Reduce the number of women who report smoking cigarettes during pregnancy from 13.8% (2011-2014) to 12.1% by 2015 and 11.1% by 2016.

Source: NH Division of Vital Records & Statistics.

Health Care Systems, Issues, and Glimmers of Hope
- Patients with state, tribal, local, or federal governments, business bodies, and community-based organizations must conduct comprehensive community health needs assessments and develop community health improvement plans.
- Support the integration of prevention and public health skills into health care professional training and career health care practitioners to implement prevention strategies.
- Increase the use of certified electronic health records to identify population needs and develop policies and programs.
- Identify patients with chronic disease and develop interventions to support their health needs.
- Implement programs to support patients who are actively engaged in decision-making that affect their health.
- Increase the number of patients who use electronic health records to communicate their health status.
- Implement programs to support patients who are actively engaged in decision-making that affect their health.
- Increase the number of patients who use electronic health records to communicate their health status.
- Implement programs to support patients who are actively engaged in decision-making that affect their health.
- Increase the number of patients who use electronic health records to communicate their health status.
- Implement programs to support patients who are actively engaged in decision-making that affect their health.
- Increase the number of patients who use electronic health records to communicate their health status.
- Implement programs to support patients who are actively engaged in decision-making that affect their health.
- Increase the number of patients who use electronic health records to communicate their health status.
- Implement programs to support patients who are actively engaged in decision-making that affect their health.

Source: NH Department of Public Health Services.
Where do we want to be?

- Decrease the Incident Management Team assembly time from 80 minutes to 65 minutes by 2019, to respond and fill key ICS roles.
- Increase the proportion of key organizations identified by NHIPP that engaged in a significant public health emergency planning, exercises or training activity from 74% to 89% in 2012 and 85% in 2016.
- Increase the CDC Medical Countermeasures Distribution and Dispensing composite score from 71 in 2013 to 90 by 2015 and to 95 by 2020. (NH exceeds the national benchmark of 51.)

Infrastructure:
- Interoperable and resilient communications system.

Situational Awareness:
- Risk assessment and risk management.
- Epidemiological surveillance and investigation.
- Animal disease surveillance and investigation.
- Agriculture surveillance and food safety.
- Chemical, biological, radiological, nuclear, and explosives (CBRNE) detection and mitigation.
- Monitoring of available health care resources.

Laboratory testing:
- Near real-time systems for capture and analysis of health security-related data.
- Information gathering and recognition of indicators and warning.
- Coordination with U.S. and international partners.

NH SHIP Implementation

- Expand Public Health Improvement Council (PHIC) to achieve representation of areas addressing all priorities.
- Maintain DPHS staff involvement.
- Regular and focused discussion on progress.
- Promote alignment of plans.
- Create or revise state and regional priorities.
- Support regional planning and implementation.
- Create synergies across priorities.
- Evaluate NHSHIP implementation annually.
- Monitor progress utilizing WISDOM.

WISDOM Modules (Phase I development)

1. Public Health Topics
2. PMA
3. Community Profile
4. State Health Reports (pilot: Cancer and Heart reports only)
5. Health Equity
6. Access & Utilization

WISDOM Modules (Phase II development)

7. Data Search
8. Emergency Module
Appendix K: New Hampshire Department of Public Health Services Presentation

Implementation Strategies

- Raise Awareness
- Engage current and new partners
- Monitor Activities and evaluate Outcomes
- Align policies, plans, priorities and resources
Contact Info
Jose Thier Montero
603-271-4617
jmontero@dhhs.state.nh.us
Appendix L: New Hampshire Public Health Laboratory Capabilities Presentation

NH PHL L-SIP 2007-2011
Essential Services 1 and 4

Dr. Christine L. Bean, PhD, MBA, MT(ASCP)
NH Public Health Laboratories

L-SIP Comparison 2007 - 2011

Essential Public Health Services

1. Monitor health status to identify community health problems
2. Diagnose and investigate health problems and health hazards in the community
3. Inform, educate, and empower people about health issues
4. Mobilize communities to identify and solve health problems
5. Develop policies and plans that support individual and community health efforts
6. Enforce laws and regulations that protect health and assure safety
7. Link people to needed personal health services and assure the provision of health care when otherwise unavailable
8. Assure a competent public health and personal health care workforce
9. Evaluate effectiveness, accessibility, and quality of personal and population-based health services
10. Research for new insights and innovative solutions to health problems

Essential Service 1: Monitor health status to identify community health problems

The score of Essential Service 1, from the L-SIP assessments indicated decreased satisfaction with the System's effort to achieve the Model Standard. The System does a sufficient job at identifying infectious disease sentinel events and monitoring trends through existing data management systems. The Lab participates in state and federal surveillance systems for infectious Diseases. The System is NOT true for environmental sentinel events or chronic disease data/events.

Future projects to improve system need:
- Increase surveillance systems not currently in place
- Clinical community needs to be encouraged to collect more clinical samples for food borne illnesses
- Biomonitoring (link between the environment and the cause of disease in humans), NOT available at the state lab, who is responsible in the lab system?
- There is a gap between the water and air surveillance and the public. How can we make the information more readily available to the public?
Appendix L: New Hampshire Public Health Laboratory Capabilities Presentation

Essential Public Health Services

1. Monitor health status to identify community health problems
2. Diagnose and investigate health problems and health hazards in the community
3. Inform, educate, and empower people about health issues
4. Mobilize community partnerships to identify and solve health problems
5. Develop policies and plans that support individual and community health efforts
6. Enforce laws and regulations that protect health and ensure safety
7. Link people to needed personal health services and assure the provision of health care when otherwise unavailable
8. Assure a competent public health and personal health care workforce
9. Evaluate effectiveness, accessibility, and quality of personal and population-based health services
10. Research for new insights and innovative solutions to health problems

ES 4 Comments

The score of Essential Service 4, from the L-SIP assessments indicated an overall satisfaction with the System’s effort to achieve the Model Standard. The implementation of UMBs has strengthened the communication between the NH PIL and its clients. The rapid and efficient receipt of results has been appreciated. The IAN and E Nineteen teams recognize the helpfulness of the resources provided by the AN PIL in coordinating to respond to emergency events. The strong partnerships of the System are attributed to the good management of resources and the communication that takes place and increased the assessment score.

Future projects to improve system needs:
- Formalize communication inside the System, to limit the influence of “gatekeepers” to increase communication outside of the System;
- Update the website to exist and increase public access;
- Aid our resources with federal funding to meet System’s needs;
- Increase partnership development, communication and resource management;
- Incorporates equipment and training needs to federal grants.
Glass Half Full

A simple scenario of drinking water contamination

Earth Day 2014

- Wild New Hampshire Day
- Informational Booth – NHPHL, Water Analysis Laboratory
- Mr. & Mrs. Gomes
  - Retired
  - Live in Bow since 1976
  - Private well
  - Babysit for grandchildren in their home, 3 days per week

Medical Concerns

- Mrs. Gomes concerned about the test results, informs laboratory staff that both she and her husband have been ill recently
  - She is being evaluated for some bladder problems
  - Mr. Gomes has emphysema

Water Testing

- Not previously tested
- Confused by the number of options
- What to test for?
- Where can the water be tested?
- Decide to collect and bring samples to the NH PHL
- Metals, semi-volatile organic, volatile organics

What Now?

- Where can the Gomes family get more information?
- Who should be informed of the elevated test results?
- Is this an isolated or a community problem?
- Are there additional laboratory tests that might be helpful?
- Is there a defined protocol for responding to these situations?

Elevated Results

- Sample concentration 725 ug Arsenic/L
- EPA standard 10 ug/L for public water supplies
- Laboratory Reports results to Mr. & Mrs. Gomes
- Provide Department of Environmental Services fact sheet
- Risks
- Mitigation strategies

New Hampshire Arsenic Contamination Scenario
Appendix N: New Hampshire Food Contamination Scenario

Memorial Day Weekend 2014

- Beautiful, warm sunny weekend after a long cold winter
- Sunday afternoon
- Many outdoor festivals, concerts, parades and barbecues
  - Food trucks
  - Home prepared foods
  - Local restaurants – outdoor kiosks

Cases

- Cases 1, 2 & 3, 1 male, 2 females all 27 years old
  - French fries, chips & salsa, Mexican restaurant
  - Diarrhea, nausea
- Case 4 – 5 year old girl
  - Hot dog at outdoor festival
- Case 5 – 60 year old woman
  - Setting up for home BBQ

Clinicians suspect chemical or toxin exposure

Symptoms
- Rapid onset of symptoms
- Contact Poison Control Center
- Toxicological advice
- Contact Manchester Health Department & NH Division of Public Health Services

Emergency Department
Manchester Hospital

- Trauma patients
- 4 patients with gastrointestinal illness
- 1 myocardial infarction
- 5 patients
  - Muscle weakness
  - Headaches
  - Tremors

Additional cases

- More than 200 individuals sickened in New Hampshire
- Cases reported in Massachusetts and Maine
Appendix N: New Hampshire Food Contamination Scenario

What now?

Investigators

- Suspect coarse salt used in a variety of products
  - Produced in Maine
  - Distributed in New Hampshire
- FDA Laboratory confirms mercury contamination of coarse salt sold in NH, MA & ME

Consider...

- Is there an established protocol for investigation?
- Clear roles & responsibilities?
- Are there additional laboratory test that may be helpful?
- What messages are being given to the public?