# Strengthening the Environmental Health System

## A Report on Regional Approaches

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APHL ASSOCIATION OF PUBLIC HEALTH LABORATORIES®

Participants of a roundtable discussion at the 2018 Indiana meeting, Importance of Safe Well Water for Maternal and Child Health. (Photo: Sarah Wright, APHL)

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## OVERVIEW

The Association of Public Health Laboratories (APHL) works with federal partners—US Centers for Disease Control and Prevention (CDC), Environmental Protection Agency (EPA), Agency for Toxic Substances and Disease Registry (ATSDR)—and public health member associations to fully integrate the public health laboratories into the environmental health (EH) system. As part of this effort, with support from CDC, APHL provided funding to eight public health laboratories since 2014 to conduct meetings to strengthen the EH system in their jurisdiction or region. The meetings were intended to:

- Build or strengthen relationships between EH laboratory staff, epidemiologists, toxicologists and other disciplines
- Improve the EH system by facilitating communication between both the EH disciplines and other partners in response to an EH issue
- Identify, address or advance an issue within the jurisdiction or region as a strategy for strengthening the broader EH system.

## DEFINITIONS

### Environmental Health Systems

All public, private and voluntary entities that contribute to and support environmental health services within a jurisdiction. While it works within the larger public health system, it sometimes relies on non-public health system partners.

### Partners (Stakeholders):

Individuals and/or entities with a role or interest in environmental health outcomes.

Laboratories were charged with addressing the EH needs within their jurisdiction or region. While various approaches were used for convening partners, they all fell within two types of meeting formats:

- General meetings focused on education and networking around EH in general or a specific EH issue
- Small working groups designed to respond to a specific need.

This document provides details on the eight meetings with a focus on practices that other laboratories and EH partners can apply to future efforts. It presents:

- Lessons Learned: How to Strengthen the EH System
- Examples: Meetings Designed to Strengthen the EH System
- Planning and Conducting Effective EH System Meetings.

## MEETINGS

**Iowa:** Improving Environmental Health through Innovation, Practice and Policy (2014)

**Indiana:** Importance of Safe Well Water for Maternal and Child Health (2018)

**Massachusetts:** Regional Environmental Health System (2017)

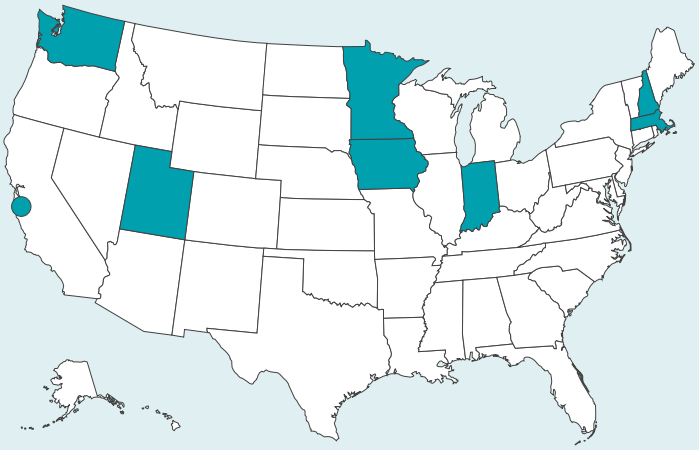
**Minnesota:** Science and Policy of Emerging Contaminants in Minnesota (2018)

**Monterey County/City of Santa Cruz, California:** Regional Planning to Respond to a Water Contamination Emergency (2019)

**New Hampshire:** Improving Environmental Health through Innovation, Practice and Policy (2014)

**Utah:** Regional Environmental Health System (2016)

**Washington:** West Coast Regional Radiological Response (2018)



# LESSONS LEARNED: HOW TO STRENGTHEN THE ENVIRONMENTAL HEALTH SYSTEM

During the process of planning and holding their meetings, organizers and meeting participants identified strategies and activities to strengthen the EH system.

## Conduct Needs Assessment Activities

Needs assessment activities can define needs within a jurisdiction and/or region in general or around a specific EH issue. They can also identify potential partners and resources for responding to needs. Methods for conducting needs assessments include focus groups, key informant interviews and surveys.

These activities can be structured or informal but it is best to identify specific questions to explore (e.g., interview protocol). It is important to have a process in place for documenting the findings and sharing them with partners. These findings can inform future activities whether it is planning a meeting, responding to an issue or strengthening the EH system in general.

### EXAMPLE: NEW HAMPSHIRE

Meeting organizers conducted key informant interviews with environmental health partners to help identify issues to address at the meeting.

## Identify and Engage Partners

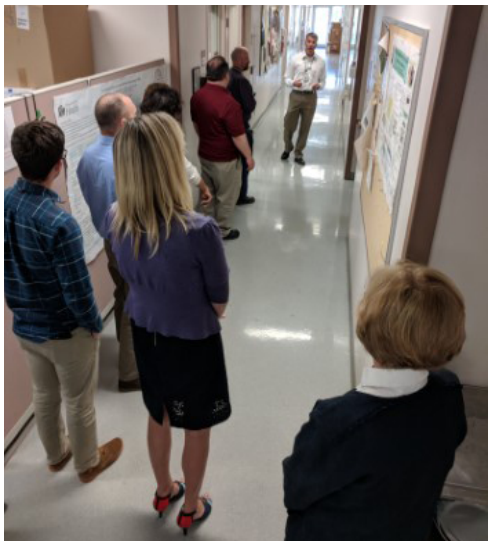
Partners in the EH system may be fluid—some are constant while others ebb and flow depending on the issue. Identifying and engaging these partners is an ongoing activity, and is often a gradual process that can grow out of needs assessment activities. Asking existing partners who else should be involved can grow the partner network. As momentum increases, new partners are likely to emerge.

Strategies for keeping partners involved include:

- Focusing on mutual benefits while emphasizing the needs of the target population and the benefits from partner activities
- Educating partners about a laboratory's capabilities and services
- Developing and/or sharing tools (e.g., outreach tools tailored to target populations)
- Tracking outcomes to demonstrate effectiveness.

### EXAMPLE: UTAH

The laboratory researched environmental organizations during the meeting planning process and identified a statewide organization for environmental health professionals— the Utah Environmental Health Association (UEHA). The laboratory conducted multiple presentations at UEHA's semi-annual meeting and now regularly participates in UEHA activities.



Participants of the 2018 meeting, West Coast Regional Radiological Response, take a tour of the Washington State Public Health Laboratory. (Photo: Sarah Wright, APHL)

## ENVIRONMENTAL HEALTH PARTNERS

### Federal

- US Centers for Disease Control and Prevention (CDC)
- US Environmental Protection Agency (US EPA)
- Federal Emergency Management Agency (FEMA)
- US Geological Survey (USGS)
- Federal Bureau of Investigation (FBI)
- National Guard

### Private Sector

- Media
- Private laboratories
- Well drillers
- Water system providers

### Non-Governmental Organizations

- Environmental organizations
- Parent groups/community groups
- Clinicians (professional organizations)
- Academia

### Public Sector

- State department of health
- Public health laboratory
- State department of natural resources
- State department of environment
- State department of agriculture
- Local health departments
- Poison centers/hotlines
- Elected officials/policymakers
- Local law enforcement
- First responders

## Define and Formalize Roles

Clarifying roles and formalizing protocols increases effectiveness, ensures accountability and optimizes resources. Many meeting participants noted that collaboration is often dependent on personal relationships, which is also true of referrals. Staff turnover can result in a breakdown of these relationships.

Regular meetings and/or conference calls can build relationships within the core EH system. Participants also suggested using an emergency response framework to define roles within a jurisdiction.

EH partners regularly noted that laboratories need to do a better job of explaining their EH system role to both partners and the public. Effectively communicating capabilities and capacity can serve to clarify the laboratory's role. For example, laboratories could better market their testing menu to EH partners (e.g., clinicians, law enforcement, first responders) and the public on a regular basis via their website and in response to specific issues (i.e., more targeted outreach to specific audiences).

### EXAMPLE: MONTEREY COUNTY/ CITY OF SANTA CRUZ

The laboratories worked with regional partners to develop the Water Emergency Response Guidance Manual. It outlines agency roles and responsibilities and provides contact information, flowcharts, checklists and resources.

## Increase Effectiveness of Communications

Effective communication among EH partners and with the public are critical for strengthening the EH system.

Many participants noted the meetings were a great networking opportunity and, in some cases, they were meeting key partners for the first time. Improving communication among EH partners closely aligns with defining and formalizing roles. If roles are clearly defined it is easier to determine who to contact. Participants also noted the need to track referral effectiveness—whether the connection is made and the requestor's needs are met. For example, if a homeowner contacts the health department about well water testing and is referred to the public health laboratory, a system should be in place to determine if the homeowner connected with the laboratory and the necessary tests conducted.

### EXAMPLE: IOWA

Meeting participants suggested that communication based on FEMA's Incident Command System model with its clearly defined roles and relationships may strengthen communication within and across agencies so that there is less reliance on personal relationships.

A recurring issue at the meetings was how to communicate effectively with the public about EH in general and around a specific issue. In particular, communicating test results in a comprehensible manner was often mentioned. Scientific terminology should be limited or at least, defined. Plain language should be used with attention to cultural/linguistic sensitivity. EH partners, such as non-governmental organizations, can help to refine messages and identify appropriate communication methods. In some instances, these organizations may be a more effective messenger to the target audience if they are already a trusted information source.

### EXAMPLE: INDIANA

The meeting identified multiple strategies to communicate with pregnant women and parents of young children about the importance of testing well water. An app developed by the state health department was updated to include safe well water information and the Department of Health and the Department of Environmental Management developed a brochure on safe well water targeting pregnant women and/or parents with young children.

## REPORT: EDUCATION AND NETWORKING MEETINGS

While planning the meetings, APHL required laboratories to take a collaborative approach by convening planning committees that involved partners from beyond the laboratory. This approach ensured multiple voices were involved in identifying the meeting objectives and framing questions. It also helped ensure buy-in from other EH system partners and provided access to partner networks for recruiting participants.

Each committee was charged with developing:

- Theme and meeting objectives
- Agenda with identified speakers
- Strategy for meeting promotion
- Strategy for inviting and registering participants.

Additionally, recipients were strongly encouraged to hire a professional facilitator. With the facilitator conducting the meeting, organizers could focus on taking part in the meeting and the input provided by participants. Facilitators participated in some of the planning activities, providing meeting format guidance such as presentation length and break-out exercises.

Funding ranged from $10,000 to $15,000 to cover meeting expenses (e.g., venue, catering, travel, facilitator, supplies). Several recipients reported they did not use all the funds. Recipients also reported it would be possible to hold a meeting without outside support.

Attendees of the 2019 Monterey County/City of Santa Cruz (CA) meeting, Regional Planning to Respond to a Water Contamination Emergency. (Photo: Carolina Rodriguez, Monterey County Public Health Laboratory)

Katie Nyquist, of the Minnesota Department of Health, presents communication strategies at the 2018 Minnesota meeting, Science and Policy of Emerging Contaminants. (Photo: Sarah Wright, APHL)

## Meetings

### Indiana State Department of Health Laboratory: Safe Well Water and Maternal and Child Health

*October 5, 2018*

Indiana has a high number of private, unregulated wells and a very low rate of testing well water for contamination. Given the significant health impact of contaminated water, especially for pregnant women and young children, the laboratory sought to engage clinicians and other EH partners to explore this issue.

The meeting included educational sessions on the following topics:

- Why clinicians should promote water testing with their patients
- Effects of contaminant exposure during pregnancy and early childhood
- Effects of arsenic and its prevalence in Indiana
- Proper private well construction.

The second half of the meeting was devoted to interactive sessions.

#### PARTICIPANTS

- Department of Health (laboratories, EH Program, Lead and Healthy Homes Program)
- Hoosier Environmental Health Council
- Department of Maternal and Child Health
- Department of Environmental Management
- Department of Natural Resources
- CDC
- Clinicians (public health nurses, OB/GYNs, pediatricians)

**Note:** Approximately one-third of participants were clinicians. Offering nursing continuing education credits appeared to increase nurse participation.

#### Highlights

Multiple strategies were identified to encourage clinicians to discuss well testing with patients. These include:

- Adding well testing to the screening questions asked by OB/GYNs
- Including well water testing as part of Women, Infants and Children (WIC) program procedures and information
- Adding well testing to the childhood immunization schedule
- Using technology to reach the target audience through LIV, an Indiana State Department of Health-sponsored pregnancy app for mobile phones
- Publishing maps of areas where well water contamination is possible
- Conducting outreach through public health nurses and public events (libraries, fairs, school events).

While the cost is minimal, testing is often seen as inconvenient. Suggestions to mitigate these perceived inconveniences included facilitating testing (e.g., sample pick-up and drop-off points) and offering result interpretation assistance. Additionally, participants suggested reaching out to the well drilling and maintenance industry and asking drillers to encourage customers to regularly test their wells and set aside money for well maintenance.

Several of the suggested strategies were implemented following the meeting:

- The LIV app was updated to include safe well water information (recommended laboratory tests, certified labs and treatment recommendations).
- The Department of Health and the Department of Environmental Management developed a brochure targeting pregnant women/parents with young children on safe water.
- A regular joint meeting with EH-related partners at the State Department of Health was established. For the first time, various divisions including EH, Maternal and Child Health, Asthma, Chronic Disease, Lead and Healthy Homes, and the laboratory are convening to address EH issues. The initial meeting focused on home visits by community health workers and the questions they should ask about occupants' health. The group meets approximately every two months.
- There has been ongoing contact between EH partners and public health nurses (e.g., attend regular meetings of public health nurses).

### Areas for Improvement

State, county or local information dissemination is either not taking place as needed or lacks coordination (i.e., common messages). The WIC program was identified as a potential leader in this effort given its regular contact with the target population.

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

*April 28, 2014*

Well water safety is an ongoing issue—an estimated 300,000 Iowans receive their water from private wells. Many EH system partners regularly work together to educate the public and encourage testing, so the meeting focused on the following topics:

- Flooding response: using the state's emergency preparedness and response system to guide public health, natural resources, agriculture and environmental agency response
- Responding to mercury in fish: exercise led by the state hygienic laboratory
- County-level response to arsenic in drinking water (case study of Cerro Gordo County).

### PARTICIPANTS

- State Hygienic Laboratory Department of Public Health
- Department of Agriculture and Land
- Department of Natural Resources
- Statewide Poison Control
- EPA
- CDC
- Local health departments
- Academia
- Iowa Cancer Consortium
- Iowa Public Health Association
- Iowa Environmental Council
- Center for Health Effects of Environmental Contamination

**Note:** Multiple policymakers registered for the conference but were unable to attend due to an extended legislative session.

### Highlights

Participants discussed how the EH system responds to emerging issues in context of the state's response to flooding impacts on ground water, Participants agreed that coordination and communication between the various government levels (federal, state, county and city) was effective but efforts were needed to improve communication with the public during these events. Improving messaging and tracking whether public inquiries were referred to the appropriate agency is necessary. Participants suggested conducting research focused on how residents identify who to call, if vulnerable populations receive and understand messages, and how to more effectively communicate with residents (e.g., social media).

An industrial hygienist from the state laboratory led participants through an interactive scenario to demonstrate the partners, roles and coordination in response to a public health issue—possible mercury poisoning in a vulnerable population. This provided participants an opportunity to see how partners work together and how to expand the EH system to include new partners as necessary (e.g., outreach to primary care providers).

Representatives from Cerro Gordo County provided a case study demonstrating how EH system partners responded to a local health department report of a family displaying neurological symptoms, which led to the detection of arsenic in ground water. A public education campaign was launched but the effectiveness of these efforts has yet to be evaluated.

### Areas for Improvement

- **Better communication with the public.** Clarifying public health system roles for various partners and effectively communicating these roles to the public could facilitate information access. In addition, a system should be in place to track the response to public inquiries (e.g., referral to other agencies) to ensure needs are met.
- **Communicate state and local capabilities.** Public health system partners and the general public often lack knowledge of public health laboratories' capabilities and services. An inventory of each laboratories' capabilities (e.g., testing menu) could address this gap. A marketing strategy is necessary to reach beyond the public health system to educate the public—especially at-risk populations—and partners outside the public health system such as law enforcement and other first responders.

- **Formalize partner roles and communication channels.** Using the FEMA Incident Command System model provides a framework for partners to work together to develop training, policies and standard procedures. Communication based on the Incident Command System's model, with its clearly defined roles and relationships, may strengthen communication within and across agencies so there is less reliance on personal relationships and prevent break downs due to staff turnover.

## Massachusetts State Department of Health: Regional Environmental Health Systems Meeting

*May 16, 2017*

The meeting focused on improving regional EH coordination and included participants from Massachusetts, New Hampshire, New York, Rhode Island and Vermont.

### PARTICIPANTS

- Northeast states public health laboratories (analysts, toxicologists, epidemiologists, and directors)
- EPA local office, Region 1
- Massachusetts Department of Health
- Massachusetts Bureau of Environmental Health
- CDC
- Mystic River Watershed Association
- Healthy Communities and Environmental Justice

### Highlights

**EH issues across the Northeast.** The presentation covered emerging contaminants including algal toxins, per- and polyfluoroalkyl substances (PFAS) and lead in drinking water. Participants also discussed:

- Understanding the state public health laboratory's capability and capacity
- Environmental clean-up issues
- Improving laboratory/epidemiologist communication
- Improving cross-discipline communication
- Increasing emerging contaminant awareness and addressing public concerns about harmful environmental contaminant exposure
- Educating the public about testing limitations and what information is reported.

**Addressing the challenges of using and communicating laboratory and field data.** This interactive session identified challenges related to communicating laboratory and field data to partners and the public. Participants emphasized the importance of coordinated messaging, anticipating target populations and their needs, and developing materials to meet these needs. Communicating with the public is challenging due to: complex information (e.g., decreasing rate of increase), terminology used (e.g., limit of detection, limit of quantitation), and testing processes (e.g., sample not collected correctly). In addition, language and terminology should be standardized across disciplines.

**Balancing field data needs and crowd-sourced data validity.** The presentation reviewed EPA tools and provided examples of EH crowd-sourced projects.

### Areas for Improvement

Strategies for improving communication include:

- **Use of plain language** (avoid jargon)
- **Define terminology** when communicating scientific results
- **Clarify testing limitations**
- **Explain accuracy/uncertainty** when reporting results
- **Improve risk communication**
- **Consider the target audience** (e.g., literacy level, cultural/linguistic sensitivity).

In addition, scientists need training on how to effectively communicate with the public.

Building trust is necessary to effectively engage with the community. Involving the community in the initial project phases (i.e., planning) helps to ensure transparency and gain buy-in. Important steps include:

- **Identifying potential partners**
- **Understanding community needs**
- **Clarifying expectations**
- **Communicating resource limitations**
- **Developing standard protocols and processes** to increase understanding of the project and possible limitations.

## Minnesota State Department of Health: Science and Technology of Emerging Contaminants in Minnesota

*May 22, 2018*

The Minnesota Department of Health (MDH) has hosted meetings focused on contaminants of emerging concern (CECs) in the past. APHL funding allowed MDH to build on this work.

### PARTICIPANTS

Invitations were sent to people who had attended previous CEC-related events and subscribers to a CEC-related newsletter.

The planning committee consisted of representatives from MDH's Environmental Laboratory Section, Environmental Surveillance and Assessment Section (including toxicologists), and planners from the Drinking Water Contaminants of Emerging Concern Initiative. The meeting was designed as a forum for discussion and networking focused on both science and policy, with the goals of generating feedback from EH partners and laying the groundwork for future collaboration.

The first part of the meeting focused on how to prioritize research and select contaminants for investigation. Presentations were made by a storm water regulator and researcher (state agency), a chemist specializing in method development (state agency), and a wastewater researcher from academia. Participants discussed how to identify high-priority contaminants affecting Minnesota communities and what strategies work best for advancing scientific research.

The second part of the meeting focused on communication, with presentations from a health educator, a public radio reporter and an environmental advocate. They explored how to communicate the science and risk of CECs to the public and how research data inform policy and action.

Breakout sessions served as mini-focus groups. Meeting organizers asked the breakout groups to address specific questions and then compiled the results. Questions included:

- How do you see your CEC work evolving in the future?
- What sources of CECs have the greatest impact on water quality or need more research?
- How do we communicate about CECs at the appropriate level?

### Highlights

**How CEC work will evolve in the future.** Participants noted that the most impact in addressing CECs will come from regulatory change, evolving monitoring and laboratory methods and capabilities to measure the correct CEC, and more collaboration across EH partners.

**Identifying CECs with greatest impact.** Concerns related to specific chemicals, especially chemicals in consumer-related products/sources, followed by storm water and urban runoff.

**Effective communications.** Providing accurate information from an unbiased source was identified as critical to effective communication. Understanding the audience was also identified as a critical part of communication efforts, as was having a trusted spokesperson.

## Areas for Improvement

**Identifying effective approaches to prioritize efforts and inform meaningful actions and policies is necessary.** Efforts are also needed to expand collaboration to include more diverse partners.

The meeting was also a helpful reminder of the importance of **providing information about the basics of laboratory science while not overwhelming the audience.** The laboratory needs to be able to explain testing processes, quality controls, turnaround time, etc. Additionally, partners and the public need information about the limitations related to testing. The laboratory should also focus on general communications efforts such as improving its website and other communications methods to raise the laboratory's profile and highlight its work.

# New Hampshire Public Health Laboratories: Improving Community Access to Environmental Health Knowledge and Resources

*May 1, 2014*

Prior to the meeting, organizers conducted a series of key informant interviews. The 30-minute meetings were informal discussions about the biggest challenges related to EH in New Hampshire and how these challenges could be addressed. These discussions informed the selection of meeting topics as well as the format.

The first half of the meeting was devoted to presentations by various EH partners. Topics included:

- Overview of Department of Environmental Services and Shared Responsibilities for EH
- Results of Community Health Assessment and Discussion of Residents' Concerns
- State Health Improvement Plan
- State Laboratory Capabilities.

These presentations set the stage for participants discussing two EH scenarios.

### PARTICIPANTS

- State laboratory (multiple divisions)
- Division of Public Health Services
- Department of Agriculture and Markets
- Department of Environmental Services
- State veterinarian
- CDC
- Local health departments
- Academia
- Health Officers Association
- Audubon Society
- Members of the public

## Highlights

In the first scenario, participants discussed the challenge of arsenic in well water and how to effectively address this risk given that there are no state standards for quality of private well water and no requirement to test well water for the presence of arsenic. During EH investigations, there is uncertainty around the level of interaction and follow up with the affected community, especially when it comes to sharing of information across EH partners and following up with the broader community. Participants suggested several strategies to improve the response by the EH system including:

- **Community review of outreach materials** to ensure clarity and effectiveness
- **More outreach and education targeting medical professionals** about the early symptoms of environmental exposure to arsenic and the agencies to contact for further information
- **Closer collaboration with poison control centers**
- **Capturing best practices and formalizing response protocols**.

The second scenario about food contamination highlighted how different policy and regulatory contexts create different authorities for response. In contrast to the arsenic scenario, discussion of a food contamination outbreak identified clearly defined roles, resources (e.g., test kits), response teams, and incident management protocols. Protocols are in place for engaging partners such as hospitals, law enforcement, the US Food and Drug Administration, and CDC.

Since the meeting, New Hampshire launched multiple activities to enhance education on safe well water. These include community testing events, increased outreach at public events (e.g., fairs), and Be Well Informed, an online tool to help residents understand well water test results.

### Areas for Improvement

- **Formalize response protocols.** Even in the absence of policy/regulatory authorities, the EH system can work to formalize protocols for coordinating activities.
- **Reach out to partners outside EH system.** In both scenarios, partners beyond the core EH system played important roles in strengthening the response. To improve testing of well water, participants suggested reaching out to professionals involved in home sales (e.g., realtors, banks, home inspectors), private laboratories, and the well digging/maintenance industry. As the food contamination scenario indicated, hospitals and law enforcement are already engaged in the response.
- **Improve outreach to residents and community.** Gaining feedback from the community on the effective of outreach activities and educational materials could improve these activities and materials. Non-governmental organizations and academic institutions could assist in conducting this research.

## Utah Public Health Laboratory: Utah's Environmental Health System

*April 27-29, 2016*

The Utah Public Health Laboratory collaborated with the Utah Environmental Health Association (UEHA) to educate EH professionals about the laboratory and its activities. UEHA holds two meetings each year for its membership, representing environmental and public health, industry, the private sector and academia. Upon receiving the funding, the laboratory explored partnering with an outside organization to conduct the meeting and identified UEHA. This was the first time the laboratory collaborated with UEHA.

### PARTICIPANTS

- Scientists and epidemiologist from state and local health departments
- State and local EH directors
- Clinicians
- Non-governmental organizations
- Laboratory scientists from 11 local health departments
- Academia
- Regional ATSDR and EPA offices
- Private sector

The laboratory made multiple presentations during the meeting:

- **General laboratory services.** An overview of laboratory services including sample transportation.
- **Environmental testing.** The presentation described the laboratory's capability to conduct testing for state and local health departments, water utilities and the general public and its capability to test for a variety of contaminants. It also described the laboratories existing partnerships with the Department of Environmental Quality's Division of Drinking Water, Division of Solid and Hazardous Waste, Division of Water Quality and Division of Air Quality.
- **Biomonitoring and LRN-C.** The laboratory is participating in two national initiatives. Biomonitoring activities are being conducted in collaboration with Arizona, Colorado and New Mexico. The Laboratory Response Network for Chemical Threats (LRN-C) focuses on emergency response.
- **Infectious diseases.** The presentation focused on the bioterrorism response laboratory and the capabilities of the bacteriology, arbovirus, virology and serology laboratories.
- **Food testing.** A half-day training conducted by an epidemiologist from the Utah Department of Health and a microbiologist from the public health laboratory on collecting specimens during an outbreak investigation.

### Highlights

As a result of the meeting, laboratory staff joined UEHA as members and regularly participate in meetings. Following the meeting, the laboratory received inquiries from local health departments about biomonitoring and community testing needs. There has also been more communication with county-level EH staff.

## KEY ELEMENTS FOR SUCCESSFUL EDUCATION AND NETWORKING MEETINGS

**Recruit co-sponsors.** Partnering with others to organize a meeting can help to reach new partners and provide access to additional resources. It also helps to strengthen working relationships that can serve as a foundation for future collaboration. Participating in other organizations' meetings, as Utah's public health laboratory did with the UEHA, is also an option.

**Be inclusive.** Spend time during the planning process identifying who should be at the meeting (i.e., who are all the public- and private-sector partners, should the public be included) and develop strategies for inviting these potential participants and/or promoting the meeting.

**Mix it up.** Develop an agenda with various presentation methods (e.g., keynote speaker, panel discussions) and activities (e.g., breakout sessions, group activities). No one wants to sit through a day-long lecture.

**High-quality presentations.** Carefully consider the speakers' skills—not just their knowledge of the subject matter but their ability to present the information in an engaging manner. When identifying speakers, if at all possible, select ones that you have seen make presentations. No matter how interesting the material, if a speaker is ineffective (e.g., nervous, reading slides, etc.) it is unlikely that the audience will absorb and retain the information.

**Time for networking.** Since making connections is one of the main purposes of the meeting, build time into the agenda for participants to interact. This can take place at breaks and lunch. Consider activities such as ice breakers or group work so that participants can get to know other EH system partners.

**Continuing education credits.** Offering continuing education credits can make the meeting more attractive to potential participants, especially clinicians. Partnering with a professional organization that offers credits can greatly facilitate the process.

## Working Groups

### Monterey County Public Health Laboratory and City of Santa Cruz (CA) Environmental Laboratory: Response to a Drinking Water Emergency Event

*January 17, 2019*

Meeting organizers sought to strengthen California's North-Central Coast region emergency response system by addressing:

- Knowledge gaps related to emergency notification processes
- Agency roles and responsibilities
- Testing capabilities of laboratories.

They brought together a group of regional partners to develop a regional response plan to a drinking water emergency event. Partners in this response included: private and public water utilities; special districts; and federal facilities including military installations whose roles and responsibilities may be directed by multiple jurisdictions including local and state environmental and public health departments.

#### PARTICIPANTS

- Public health representatives
- Regional water boards
- EH representatives
- Drinking water and wastewater utilities
- Local first responders
- National Guard Civil Support Team
- Federal Bureau of Investigation
- EPA

Specific meeting objectives included:

- Create a regional EH meeting focused on water contamination emergency management planning among various counties in Monterey Bay and Silicon Valley.
- Provide a forum for federal, state and local resource managers to participate in developing flow charts and protocols for managing water contamination emergencies.

- Develop a flow chart or guidance document as a template for coordination of responses to water contamination events.

In advance of the meeting, the organizers developed a draft response plan so that participants would not have to start from scratch in crafting a plan. At the meeting, organizers presented the draft plan and participants provided feedback. A second meeting was held May 2019 to finalize the plan.

The meetings resulted in the following outcomes:

- Participants were encouraged to plan water contamination event exercises in their local jurisdictions using emergency response planning documents from the meeting.
- Development of the Water Emergency Response Guidance Manual, which includes information on roles and responsibilities of agencies, contact information, flowcharts, checklists and resources.

## Washington State Department of Health: West Coast Regional Radiological Response

*May 16, 2018*

The Washington State Public Health Laboratories held a meeting with representatives from Oregon and California to discuss a multi-state response to a scenario of a major fallout event and share methods and capabilities for response. The 2011 nuclear meltdown in Fukushima, Japan showed that the United States west coast is directly in the path of fallout from nuclear releases in countries across the Pacific Ocean. In the case of a large-scale release or detonation, the states of Washington, Oregon and California will need to monitor incident airborne radionuclides and the fate of those radionuclides on both an emergency and ongoing basis.

### PARTICIPANTS

Representatives from Washington, Oregon and California, including health physicists and radiochemists. US EPA and US Department of Energy representatives were also included.

Unlike members of the non-nuclear public health system who interact frequently during disease outbreak investigations, radiological responders do not often connect with counterparts at other facilities except during radiological events. They rarely participate in preparedness exercises for out-of-state or international events. The meeting allowed participants to build relationships to improve the speed and accuracy of communication among states should an event occur.

Meeting participants worked through a scenario focused on responding to an accidental nuclear weapon detonation on the Korean Peninsula. Key steps in the exercise included:

- Current preparedness (capabilities, capacities and gaps)
- Potential solutions, rapid methods and collaboration among partners
- Risk communication and messaging for governments, industry and the public.

During the exercise, participants considered the following questions:

- Who should get together at the state level to coordinate the early response?
- Who plans surveys, sampling and communication with the public?
- When should federal assistance be sought and how is it used?
- Who collects samples, how are they collected, what markers are used?
- How are the sample loads prioritized among the states?
- How are results provided to the samplers?

The meeting resulted in a memoranda of understanding (MOU) among the partners covering the details of each partner's response during an actual event.

## KEY ELEMENTS FOR A SUCCESSFUL WORKING GROUP

**Leadership.** A strong leader is needed to guide the planning process. Participants need to feel confident that the meeting will be a valuable exercise (i.e., worth the time of attending) and that proposed outcomes will be achieved.

**Invite the right people.** For a working group to be successful the right people must be in the room. They must have the knowledge and experience to participate in the exercise.

**Planning.** The planning committee should include participants who provide input on the meeting's goal, objectives and outcomes. Expectations should be identified and discussed. This level of involvement in planning ensures buy-in and active participation during the exercise.

**Pre-work.** Pre-work lays the groundwork for a meeting and ensures that all participants arrive prepared and with the necessary knowledge to participate. For example, for the Monterey/Santa Cruz meeting, each jurisdiction prepared a presentation on their level of preparedness that set the stage for discussions during the exercise.

**Facilitator.** A facilitator allows participants to focus on the exercise and ensures that discussions stay on track with the meeting objectives and outcomes.

# APPENDIX: PLANNING AND CONDUCTING AN EFFECTIVE MEETING

Organizing a meeting is a step-by-step process, regardless of the focus or anticipated size. Key steps of the process are identified below.

## Pre-meeting Research

- **Identifying topics.** While not absolutely necessary, consider conducting research to help identify topics and narrow the focus of the meeting. This can take the form of focus groups, key informant interviews or online surveys.
- **Honing topics during registration.** Some recipients conducted short surveys during the registration process to help them refine topics to more closely align with participants' interests.

## Planning

- **Develop a timeline and budget.** Working back from the date of the event establish target dates for the accomplishment of specific tasks. Assign a staff person or planning committee member to carry out each identified task. As the planning process proceeds, new tasks may be added. Timelines and budgets may also need to be revised during the planning process due to unforeseen events. Build in extra time to respond to the unexpected.
- **Select a date.** Select a meeting date at least three to six months in advance and send a save-the-date notification (e.g., email). In addition to getting on people's calendars, many federal, state and local government employees must get approval to travel to meetings, which can take several months.
- **Identify a facilitator.** The facilitator allows all participants, including the organizer, to focus on the meeting discussion and exercises. The facilitator also ensures the meeting stays on track, participants are not side tracked, everyone participates, and that some participants do not dominate discussions. While it is possible to hire a facilitator, look within your own organization and to partners to see if someone on staff has the necessary skills and is available for the meeting. Incorporate the facilitator into the meeting planning process, or if possible, have the facilitator lead the planning sessions.
- **Identify EH system partners aligned with the meeting topic.** Defining the system and each partners' potential roles and responsibilities provides an important framework for meeting planning. This can be refined through the planning committee and meeting participants. It can be used as a tool to educate meeting participants and to help achieve the meeting objectives, particularly if the relationships can be depicted visually.
- **Establish a planning committee.** The committee participates in the meeting planning and should be representative of the major EH system partners. The committee may be small (3-4 individuals and the meeting facilitator) or more expansive to include a greater number of EH system partners. Planning committee meeting dates should be established early on. At the beginning of the planning process, it is likely the committee will meet more frequently. The need for meetings will taper off as event approaches. The planning committee will likely provide feedback on many of the topics listed in this planning guide.
- **Identify potential meeting co-sponsors.** Co-sponsors can greatly increase the effectiveness of a meeting. They can bring in additional resources and partners and take on some of the organizing tasks.
- **Determine objectives.** Objectives identify the desired outcomes of a meeting and how they will be achieved. Ideally, a meeting should have no more than three objectives.
- **Develop an agenda.** Consider the best way to present the information to facilitate participant engagement to accomplish the meeting objectives. Discuss how each part of the agenda will build towards accomplishing the objectives. Dedicate agenda time at the end of the meeting to plan how to follow up on action items and sustain the meeting's momentum.
- **Develop a strategy to identify, invite and communicate with participants.** Determine how participants will register for the event and how you will communicate pre- and post-meeting details. Consider using the registration process as an opportunity to get participant feedback on their EH system roles and responsibilities, their meeting goals and expectations, and questions they want addressed during the meeting (e.g., online survey during registration).
- **Identify speakers based on topics to be presented.** Speakers should be knowledgeable on the topic but also consider their presentation skills (e.g., try to select speakers that you have seen present before). Identify back-up

speakers in the event your first choice is not available or has to cancel. Contact speakers as soon as possible to confirm their participation.

- **Identify any pre-work and materials to be distributed before the meeting.** Pre-work can range from assigned reading, completing specific exercises, or preparing short presentations (e.g., organizational capacity). Typical materials distributed at meetings include the agenda, participant list (with contact information), and speaker bios.
- **Determine how to document meeting and evaluate its impact.** Different approaches to accomplish this may include facilitator flip-chart notes, note-takers/summary report, photographers, audience feedback, and pre- and/or post-meeting surveys.
- **Plan for sustained impact.** Develop a strategy to build on the momentum of the meeting's accomplishments and track the accomplishments of agreed-upon post-meeting steps.

## Meeting Logistics

- **Venue selection.** The venue is dependent on the anticipated number of participants and other factors (e.g., convenient location, amenities). Partner organizations may be willing to provide access to their facilities if none are available in your own organization. At this time, determine whether breakout rooms will be necessary and give thought as to how chairs, tables, audiovisual equipment, supplies and food can be set up.
- **Catering.** Determine catering needs based upon the meeting budget and length. During registration, ask participants about dietary restrictions.
- **Technology and meeting supplies.** Determine technology and supply needs, such as audiovisual equipment, teleconferencing capabilities for presenters and participants, flip charts, notepads, etc. Consult with on-site audiovisual staff prior to the meeting to determine capacity and support during the meeting. Preload all presentations onto a single computer to facilitate transitions between presentations.
- **Presentations.** Request that all presenters submit their presentation prior to the meeting (ideally one week). This ensures that presenters are preparing for the meeting but also allows organizers time to load presentations onto a single computer to be used during the meeting.
- **Room set-up.** Consider options based on the number of participants (e.g., classroom style, groups at round tables, u-shaped table, etc.) and how it can support efficient meeting logistics and productive discussion.
- **Registration.** Have a process in place for greeting participants and checking them in. If materials are required, have them pre-packaged for easy distribution.
- **Contingency plans.** Be mindful of what can go wrong. This can range from speaker cancellations to fire drills in the venue. Be prepared to readjust the agenda.

## Planning for Evaluation

- **Document activities (process evaluation).** Document your planning process and collect data about who attends you meeting (e.g., number of participants, organizations, disciplines, etc.). Assign a few people to take pictures throughout the meeting.
- **Impact.** Consider a post- and possibly pre-meeting participant survey to obtain feedback. This can elicit their feedback on all aspects from the venue, speakers, whether they found the meeting useful, their change in knowledge on the topic, how the results will impact their work and the EH system, and what should be done differently in future meetings.

## Day of the Meeting

- **Materials.** Transport all necessary material (printed materials, flip charts, pens, post-it notes) to the venue.
- **Walkthrough.** At least one hour before the start of the meeting, conduct a walkthrough to ensure the room is set up to specifications and that all audiovisual equipment is functioning.
- **Registration.** Have staff available at the registration table to check in participants and answer questions.
- **Keeping event on schedule.** Assign someone to signal presenters if they are exceeding their allotted time.

## After the Event

- **Follow-up.** Post-meeting, communicate with participants on topics such as concluding thoughts, summary documents and/or resources that need to be shared with the group. Assign a person to oversee action item follow-up and provide ongoing progress reports.
- **Send thank you letters.** Send letters to speakers, planning committee members and anyone else that made a significant contribution to the event.
- **Review evaluations.** Compile findings from any evaluation activities.
- **Summary report.** If a summary of the proceedings is planned, develop a report and disseminate it to participants and other appropriate audiences.

## Successful Meeting Facilitation: Pro Tips

- **Start and end on time.** This pertains to all aspects of the meeting, including sessions and activities. Agenda adjustments may need to be made, but this assures participants that attention is being paid to their time commitment and to ensuring the meeting outcomes are achieved.
- **Document participants' expectations.** While the meetings objectives are clearly stated, it can be useful to take a few minutes to ask participants about their expectations for the meeting. This can be recorded on flip sheets and re-visited at the end of the meeting.
- **Set ground rules.** These make it clear to participants what is expected from them (e.g., not using phone during the meeting, respectful of all participants [i.e., there are no bad ideas]).
- **Provide food and beverages.** While not absolutely necessary, people are more engaged if they are not hungry. Also, it is possible that some participants will not return after lunch if they must leave the venue to get food.
- **Ice breaker exercise.** These provide an opportunity for participants to get to know each other and give everyone a chance to talk.
- **Define acronyms.** It is easy to get bogged down in acronyms. Stop speakers and identify acronyms. Keep a list on a flip chart.
- **Develop common definitions.** Work with participants to develop definitions for key concepts and terms. Getting everyone on the same page from the beginning can prevent misunderstandings later in the meeting.
- **Read the room.** Body language is a good indication of whether people are engaged in a discussion. If participants are checking out, look for ways to bring them back. For example, if a discussion has dragged on too long or is no longer productive, consider ending the session. This time can be "banked" for later in the meeting.
- **Everyone participates.** Make it clear that everyone is expected to participate in the meeting. Ensure that no one is dominating the discussion and cut them off if necessary (i.e., that's a great point but let's hear from someone else). Conduct "round robin" check-ins where everyone provides feedback.
- **Allow time for silence.** Silence allows participants to process and gather their thoughts. No one talking can be a good thing.
- **Enough, let's move on (ELMO).** The meeting goal is solutions and the agenda is set up to move participants in that direction. However, if discussion is stalled on a point, it may be necessary to move on without a resolution. Don't keep a discussion going after it is no longer productive.
- **Stretch breaks.** Not everyone will participate but giving participants the opportunity to get up and stretch and move around can help to re-energize the discussion.
- **Closing thoughts.** Depending on the size of the meeting, it can be useful to ask participants' perceptions of the meeting regarding achieving objectives, format and other aspects.

## Association of Public Health Laboratories

The Association of Public Health Laboratories (APHL) works to strengthen laboratory systems serving the public's health in the US and globally. APHL's member laboratories protect the public's health by monitoring and detecting infectious and foodborne diseases, environmental contaminants, terrorist agents, genetic disorders in newborns and other diverse health threats.

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