United States Environmental Protection Agency

The Nexus between the Water and Healthcare/Public Health (H/PH)Sectors

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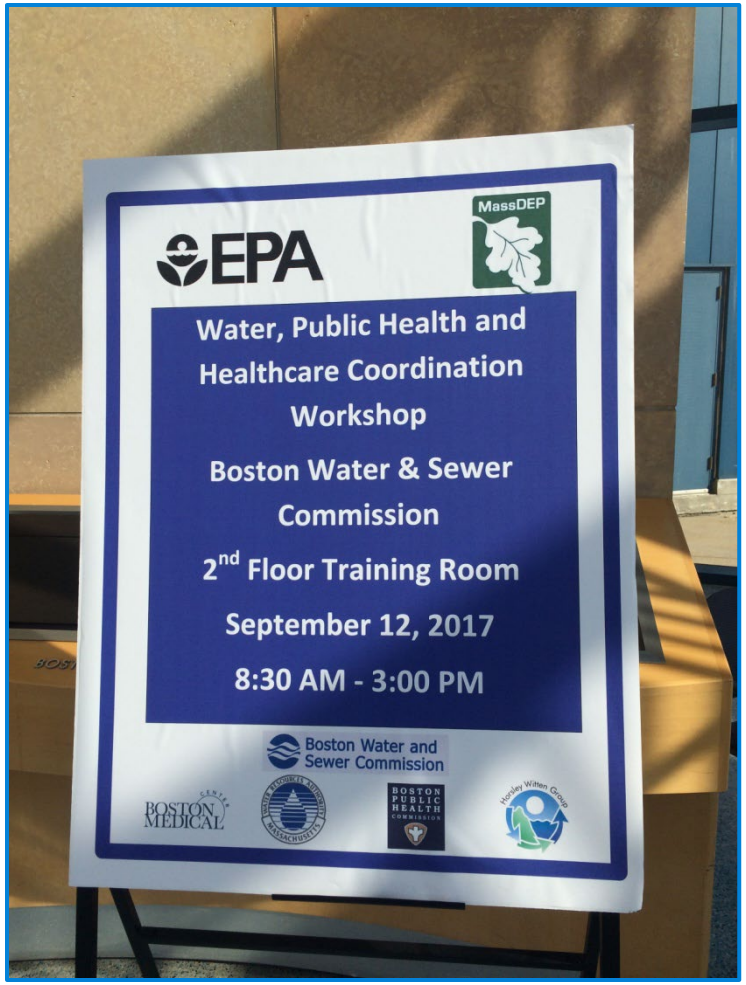
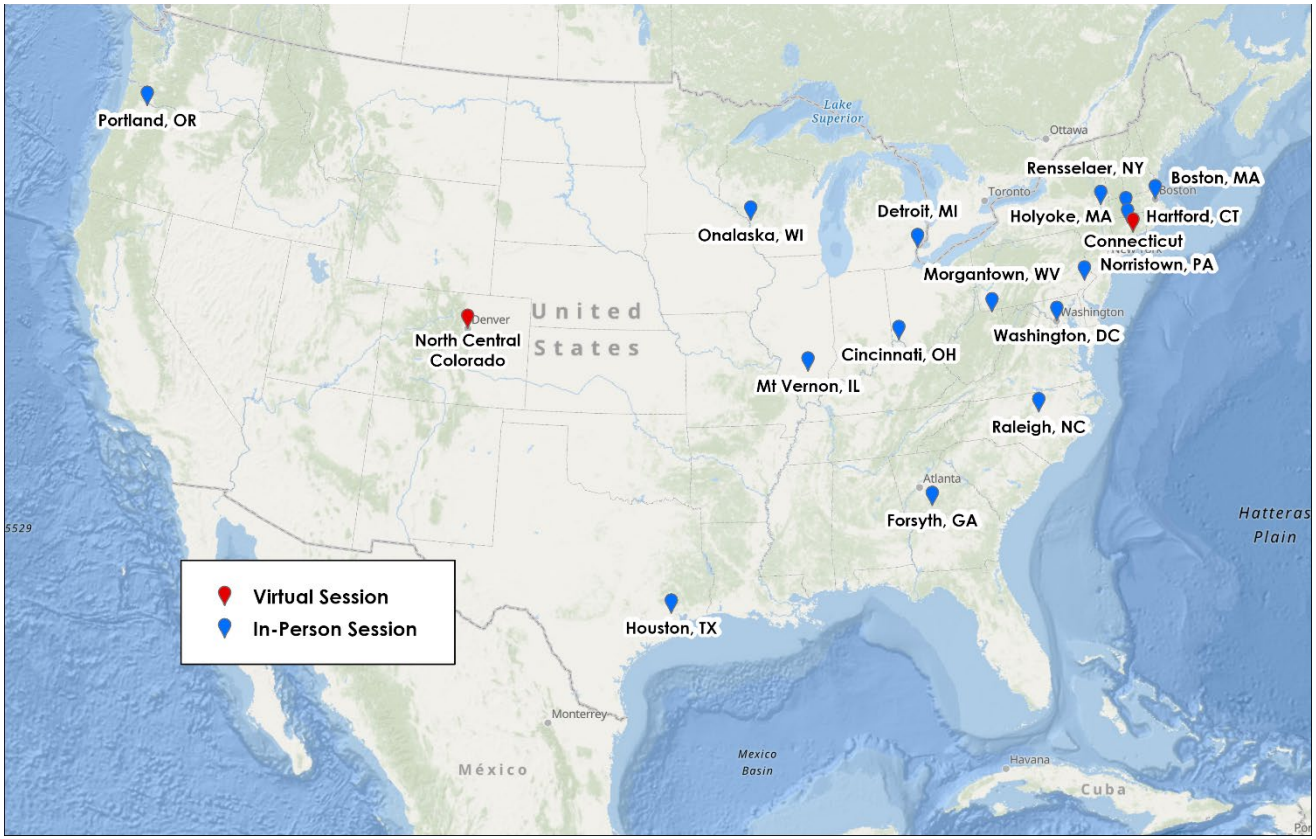
Water, Public Health and Healthcare Workshops

Objectives and Goals:

- Increase communication between water utilities and healthcare/public health communities
- Build relationships and strengthen connections between the sectors
- Exchange information on emergency plans, capabilities, needs, and public communication strategies



Water, Public Health and Healthcare Workshops



- 17 workshops held across U.S. from 2016 to present
- Included areas affected by major spills, water main breaks, and public health crises, such as *Legionella* and PFAS

Water, Public Health and Healthcare Workshops

- Presenters from utilities, drinking water primacy agencies, public health agencies, and hospitals

- Tabletop exercise:
  - Scenario presented to participants:
    - 60-inch water main break forces a boil water advisory
    - Turns into a “Do Not Drink” notice
    - Water outage at least 48-72 hours
    - Scenario has also been varied – e.g., there is no disaster per se, but PFAS is detected in the water for the first time by either a) an outside environmental organization or b) the water utility, and, an earthquake causes widespread water disruptions, now compounded by large numbers of injured people arriving at hospital
  - Discussion of how water utilities and healthcare/public health would respond in this incident and how they could help each other

Water, Public Health and Healthcare Workshops

- Workshops were well-received by participants
- Many **lessons learned** and **best practices** came out of workshops
- Suggestions that drinking water primacy agencies can pass on to their utilities to improve relationships with hospitals, health care facilities, and public health agencies

Lessons Learned and Best Practices

Administrative Suggestions for Utilities

- Keep key contact info up to date
- Participate in regional Healthcare Preparedness Coalitions
- Obtain a login for WebEOC system – better yet, send a representative to your jurisdiction's EOC
- Conduct preparedness training events together with healthcare and public health sectors
- Identify certified laboratories that can analyze for unregulated or exotic compounds in the event of a suspected contamination incident
- Know and use the Incident Command System – hospitals do!
- Investigate the availability of state or county Emergency Drinking Water Supply (EDWS) plans and alternate water availability in the area
- Review planning tools on WaterISAC for coordinating water utilities and public health

Lessons Learned and Best Practices

Importance of Advisories

- Use simple, non-technical language
- Coordinate public messages with public health agencies to avoid confusion
- To hospitals, a “Boil Water” advisory is treated as a “Do Not Use” advisory, even for non-potable uses
- Hospitals often need to know more than the general public, and that critical customer notification needs to be coordinated with public health agencies

Lessons Learned and Best Practices

Changes in Water Chemistry and Storage

- Health care facilities and dialysis centers need to be informed about planned and unplanned changes in water chemistry and storage
- Know where dialysis centers are and where home dialysis units are distributed
- Hospitals and other facilities have devices (e.g., autoclave) that can cross-contaminate their plumbing if they have no backflow prevention program in place – utility can help advise
- In areas with decreasing economic activity and population, infrastructure capacity can exceed needs, creating opportunities for stagnant water

Lessons Learned and Best Practices

Poison Control Centers

- Keep Poison Control Centers in the loop during an incident because they will get calls from public
  - Often have pattern recognition/ tracking infrastructure built into data recording systems
- Can be an asset for utility because they are viewed as a 3rd party (not "government" or "utility")
- Calls they receive can inform utility of a water issue
  - e.g., blue vomit = copper in drinking water
- Food and water contamination often have similar symptoms and poison control centers might be aware of incident specifics that local agencies are not

Lessons Learned and Best Practices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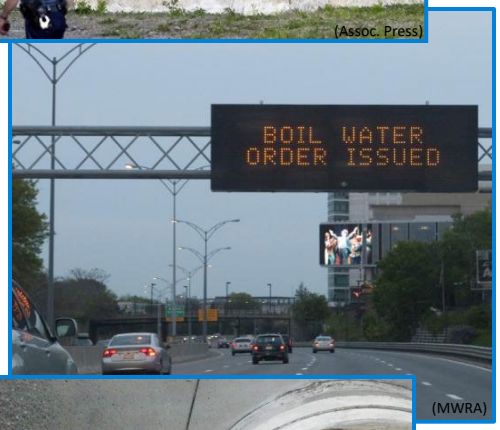

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Example: 2010 Boston Water Emergency

- Medical facilities learned many lessons about their own operations (e.g., have more bottled water, use waterless scrubs, conduct water audits)
- Medical community is now a major consideration when Boil Water Orders are issued
- Boil Water Order was for everyone in Boston (and beyond) but some hospitals were actually not affected - utility told those hospitals individually so that they could operate, and help impacted facilities
- Hospitals developed water conservation plans after the incident

Lessons Learned and Best Practices

Example: *Legionella* in hospitals

- *Legionella* bacteria caused lung infection in a Connecticut Hospital in June 2015
- Connecticut Department of Public Health notified
- Hospital took samples, closed and disinfected suspect areas, flushed lines
- Developed a water management plan, including:
  - No storage tanks
  - Replace hands free faucets with wrist blades
  - Shower quick connects
  - More frequent flushing
  - No birthing tubs
- CDC resource: https://www.cdc.gov/control-legionella/php/toolkit/index.html

Lessons Learned and Best Practices

Example: Dialysis Centers

- Complete annual hazard vulnerability analyses (HVAs) to identify any issues and coordinate with response partners to address them
- Routinely monitor chlorine in water (e.g., every four hours), and increase monitoring during a water emergency
- For a water emergency:
  - Potable water tankers (one chain of centers has a national contract)
  - Portable handwashing stations and portable toilets
- Strive for three-day self sufficiency:
  - Divert patients to other facilities that have water
  - Shorten treatments to allow for more patients when water supply is limited
  - Home patients should be told to keep a back-up water supply and have waterless hygiene products available
- When emergency is over test water supply before resuming services

Lessons Learned and Best Practices

Example: Hospital Water Outages

- Have looped, redundant water feeds
  - If the system is not looped, parts of the hospital can still be without water
- Ensure redundant feeds are connected to different zones of the municipal system
- External water hook-ups (e.g., Storz connection) allow water haulers to supply water more easily - know the licensed potable water haulers in your state ahead of time
- Fuel and electricity outages are rehearsed, but water outages are rarely rehearsed – you need to rehearse
- It is time consuming to clean ice machines after a brown water incident
- If you have a well that serves a non-potable use (e.g., water for a power plant), consider also permitting it as an emergency potable supply

Lessons Learned and Best Practices

Example: PFAS/Emerging Contaminants

- Water advisory content - what do you say when information is limited on emerging contaminants? Partnerships are needed with public health agencies as well as access to resources such as ATSDR.
- The water utility and the public health department need to have initial conversations, develop a joint and consistent public health/drinking water advisory and message, and establish a recurring meeting schedule until the incident is resolved.
- The public needs to understand that when there are so many potential contaminants and relatively few tested for in drinking water that “safe” water is not necessarily “zero risk” water.

Next Steps

- A Critical Connection: The Water and Healthcare/Public Health Sectors
  - This product has been updated!
  - Provides information on building relationships, coordinating preparedness, coordinating water use advisories, working together on water quality, allying with Poison Control Centers, and responding together.
    - https://www.epa.gov/system/files/documents/2022-10/221024_WaterHealth_508c.pdf

A Critical Connection: The Water and Healthcare/Public Health Sectors

EPA

During emergencies, water utilities, healthcare facilities, nursing homes, public health agencies, primacy agencies and local emergency managers should work together to minimize detrimental impacts to public health caused by disruptions in drinking water and wastewater services. Early planning and communications are vital. Facilities such as hospitals need safe drinking water to care for patients, perform surgeries and sterilize instruments, especially when an emergency strikes a community. Water utilities need to know how they can best assist and advise their critical healthcare customers. Learn more below.

Relationship Building

In Virginia, the Martha Jefferson Hospital moved into the Albemarle County Service Authority's service area. During construction, the Authority worked with the hospital to:

- Install a potable water connection and booster pump so that the hospital could accept hauled water to meet daily demands during an outage
- Install dual meters to allow for continuous service in the event of vault replacement or other repairs

1. Build Relationships

Meet each other. Utilities should participate in healthcare preparedness coalitions, regional advisory councils, or other public health preparedness groups. Many times these organizations can help to disseminate information and ease communications between the water and healthcare/public health sectors during emergencies. These meetings are also a good time to share your day-to-day and emergency contact information with each other. Water utilities could invite healthcare and public health staff to tour their facilities.

Attend events together. Both sectors should contact their local emergency management agency (EMA) to see what EMA training and exercises could be jointly attended. EMAs also play a critical role in protecting human health. Accredited hospitals conduct annual drills or exercises that could be based on a water supply emergency. EPA's Training & Exercise Plan and Tabletop Exercise tool can help.

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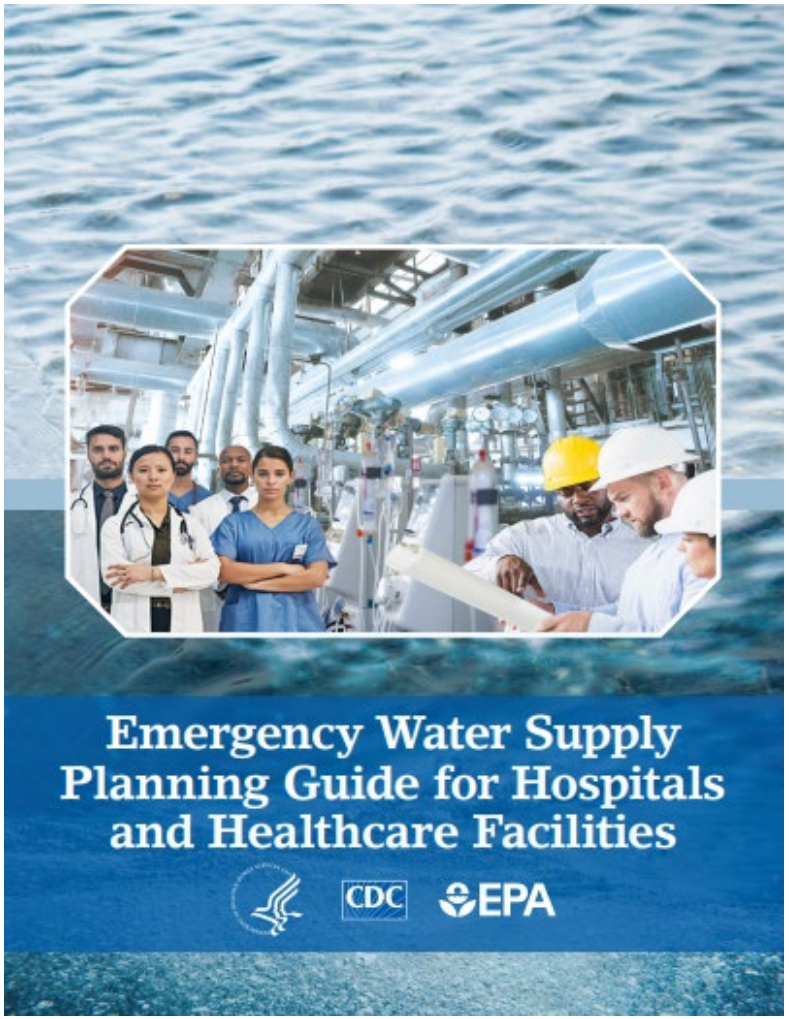
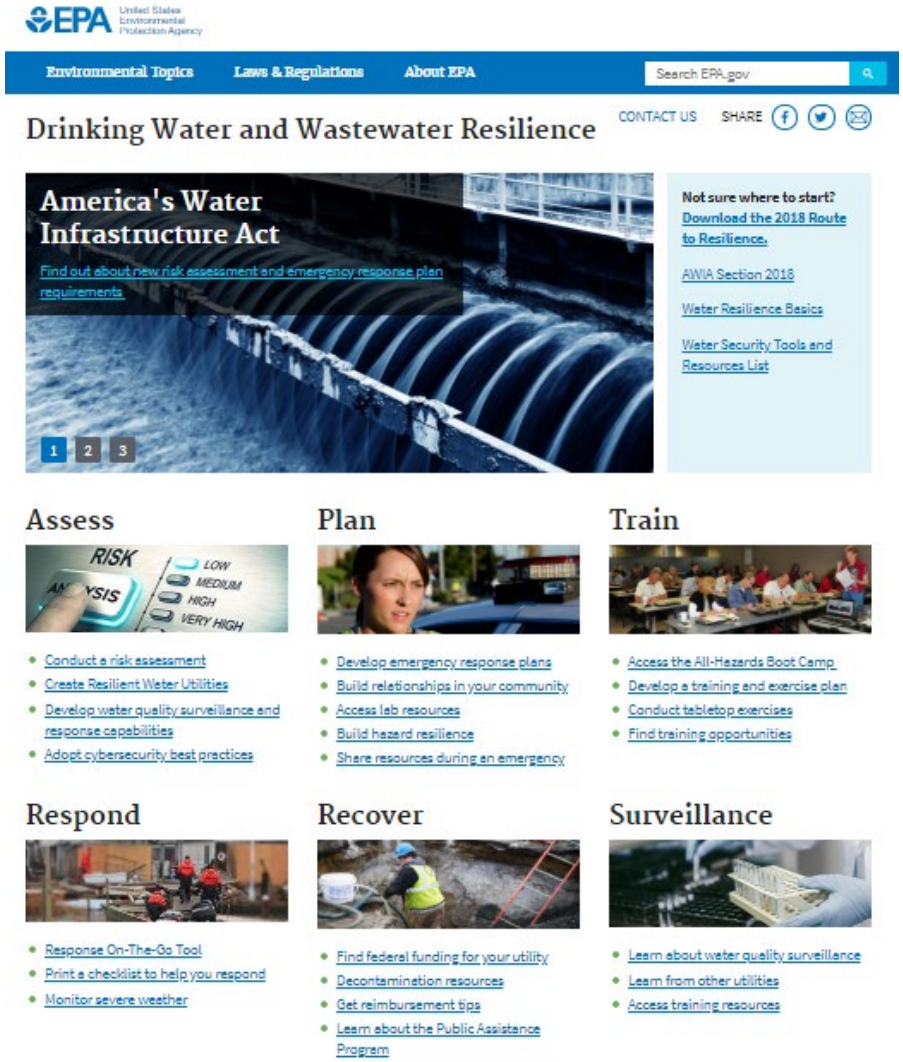
Next Steps

- CDC Emergency Water Toolkit https://www.cdc.gov/water-emergency/hcp/toolkit/index.html
- Emergency Water Supply Planning Guide for Hospitals and Health Care Facilities
  - 2019 Update: https://www.cdc.gov/water-emergency/media/pdfs/2024/07/emergency-water-supply-planning-guide-2019-508.pdf
  - CDC, EPA and AWWA collaborated on this document



Visit *epa.gov/waterresilience* today!



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Questions/Comments:

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