

STATE OF WATER PREPAREDNESS: A 2018 SCAN OF WATER PREPAREDNESS AND RESPONSE INFRASTRUCTURE IN STATE AND TERRITORIAL HEALTH AGENCIES

EXECUTIVE SUMMARY

In spring 2018, ASTHO surveyed state and territorial directors of public health preparedness and environmental health to learn more about their protocols, tools, resources, infrastructure, and gaps related to drinking water emergency preparedness and response. Survey questions focused on how state and territorial health agencies organize their water preparedness activities and what processes they have in place to prepare for and respond to water emergencies.

- Almost all participants (94.4%) represented state departments of health.
- Over 60 percent of responding jurisdictions have dedicated staff in environmental health (93.7%), epidemiology (87.3%), preparedness (84.1%), and water quality (65.1%).
- Approximately 54 percent of surveyed environmental health programs manage drinking water for public water supplies in their jurisdictions.
- Private wells are managed by environmental health programs in 34.4 percent of responding jurisdictions.
- Over half (52.2%) of responding jurisdictions conduct hazard assessments for wells that may have been impacted by emergency situations.
- Almost three-quarters (73.8%) of responding jurisdictions include drinking water emergencies in their public health preparedness/all-hazards preparedness plans.
- Almost all (96.8%) of responding jurisdictions have an Incident Command Structure, and 49.2 percent of these have stood up for drinking water emergencies 1-5 times in the past two years.
- Over the past two years, the most common types of drinking water emergencies for responding agencies were flooding, water outage, and chemical-related incidents.
- In 68.8 percent of the responding agencies, routine and emergency water sampling mostly use the same laboratories for testing and are managed by the same programs.

While there are robust programs in place to prepare for and respond to the growing number of water emergencies facing the United States, there is also a recognized need for increased coordination among programs to align their activities and communication. It is clear that water preparedness is a shared responsibility between environmental health and preparedness programs in state and territorial health agencies, but also between these public health agencies and other governmental sectors and entities. The compilation of data provided in this report is one effort to understand the complexities of water preparedness and identify both areas of strength, but also opportunities for improvement for the future.

BACKGROUND

Between March and May 2018, ASTHO surveyed state and territorial directors of public health preparedness and environmental health to learn more about their protocols, tools, resources, infrastructure, and gaps related to drinking water emergency preparedness and response. Survey questions focused on how state and territorial health agencies organize their water preparedness activities and what processes they have in place to prepare for and respond to water emergencies.

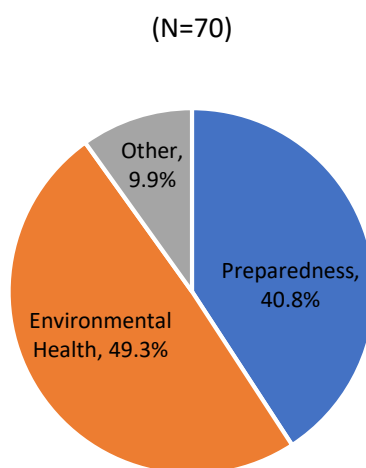
Topics included:

- Where drinking water programs are housed within each agency.
- The types of water emergencies that each state or territory faces.
- Each agency's history of standing up emergency operations centers for water emergencies.
- Each agency's water sampling protocols.
- Each agency's communication protocols during a water emergency.
- The types of resources that guide each agency during an emergency situation.
- Relevant statutory or regulatory foundations that guide each agency's water preparedness and response activities.

Survey participants included 70 individuals representing 53 states or territories. The majority of participants (94.4%) were representatives of their state or territorial health agencies. The remaining participants (5.6%) indicated that they worked for the state or territorial department of environmental protection, quality, or management, the department of environmental conservation, or a department of health and environment.

Participants were asked to identify the title of their program or bureau, and responses were an approximate even split between preparedness and environmental health. Other program titles included engineering services, laboratory, epidemiology, health protection, drinking water, and environmental health and preparedness combined (see Figure 1).

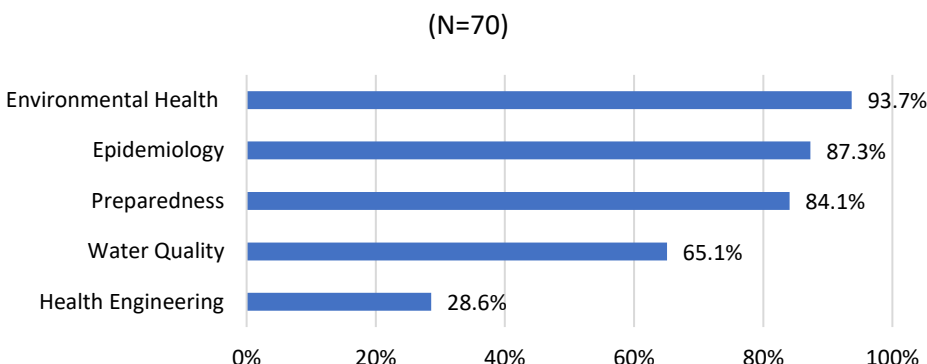
Figure 1. Participant Program Titles



HEALTH AGENCIES

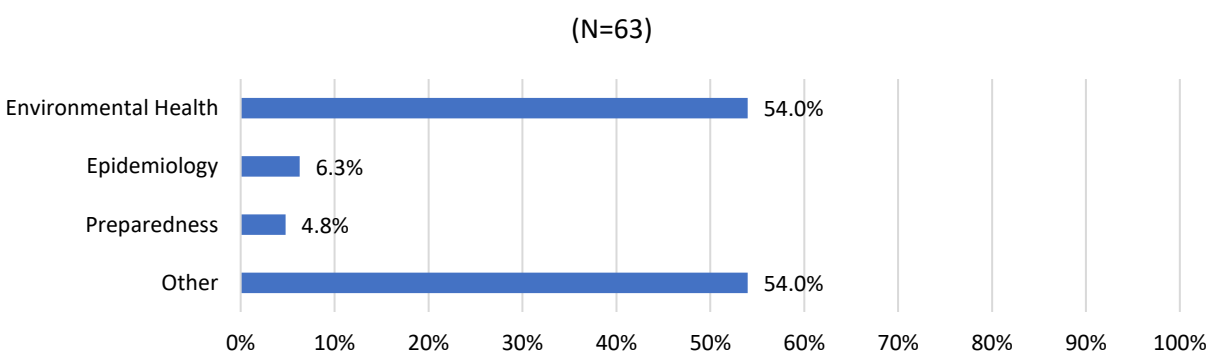
Participants reported that their health agencies have dedicated staff in a variety of areas that can respond to water-related concerns (see Figure 2).

Figure 2. Agencies with Dedicated Staff (By Activity)



Participants indicated which programs routinely manage activities related to safety and quality of public water supplies in their agencies (see Figure 3). A majority (54%) of participants indicated that environmental health managed these activities, while a few indicated that preparedness (4.8%) or epidemiology (6.3%) held these responsibilities. Since participants could choose more than one answer, the same number of participants (54%) selected programs other than those listed. This could indicate a shared responsibility with environmental health. Of these other programs, 27 (75%) indicated that this responsibility fell outside the state health agency, and identified the state department of environment, environmental services, or natural resources, or the state environmental protection agency or similar. The remainder (25%) identified the drinking water program or engineering services within the state health agency. Most participants (74.6%, N=63) reported that the program in charge of activities related to safety and quality of public water supplies does not change in an emergency situation. Ten participants (15.9%) reported that there is a change. These changes may include enhanced interdepartmental coordination or involving the department of health when the emergency involves a human illness, in cases where the public health agency is not responsible for managing public water supply programs.

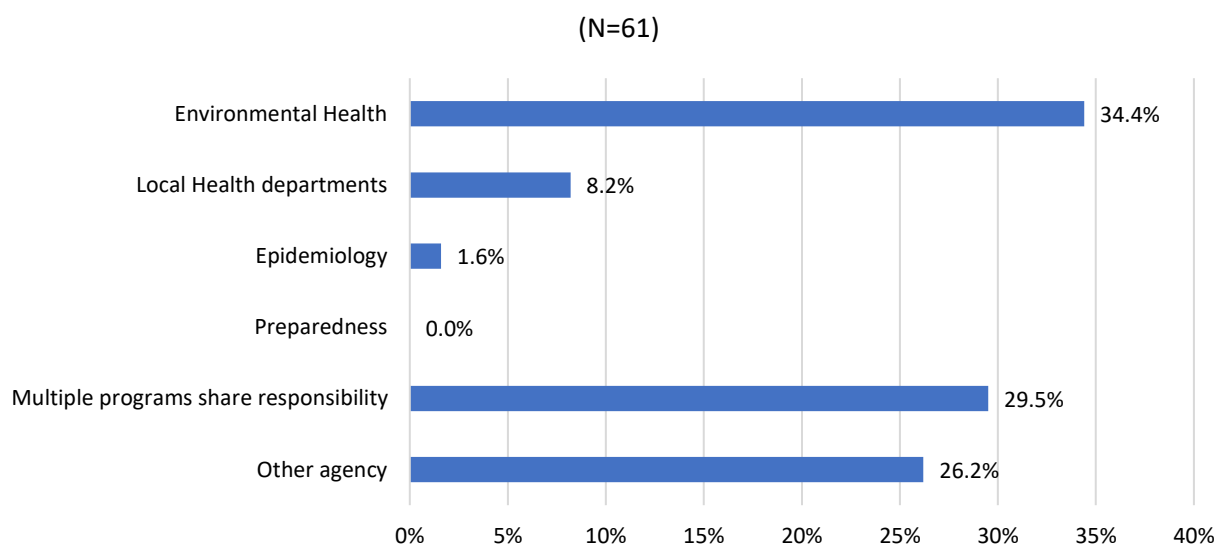
Figure 3. Programs Managing Drinking Water Activities for Public Water Supplies



PRIVATE WELLS

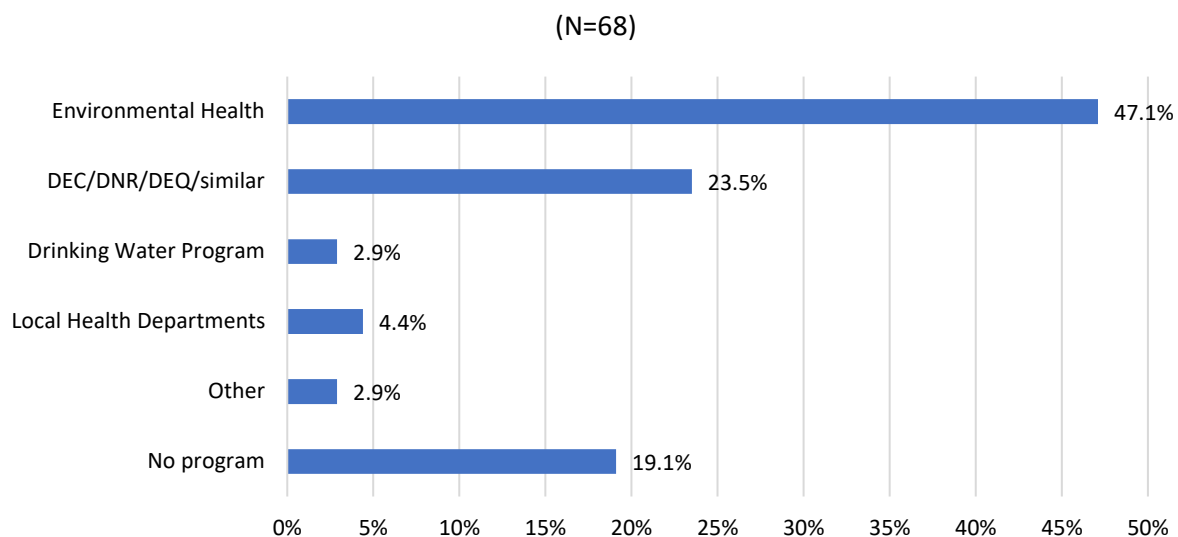
In over a third (34.4%) of the responding agencies, activities related to private wells are managed by an environmental health program (see Figure 4). In cases where multiple programs share this responsibility, participants indicated that the state health agency works frequently with the state environmental protection agencies and local health departments. In cases where other agencies held this responsibility, most (68.4%) participants indicated either a department of environment (or similarly titled department) or local public health offices. For most respondents (68.3%), the program that manages activities related to private wells does not change during a water emergency. Fourteen participants (22.2%) offered examples of how these roles or activities change during an emergency response. According to one participant, “Most issues related to private wells [are] managed by state or local health, but investigation of chemical contamination during/after flooding may fall to the Department of Natural Resources (DNR). Also, water quantity issues (such as drought emergency) fall to the DNR Water Resources Program.”

Figure 4. State and Territorial Health Agency Programs Managing Private Well Activities



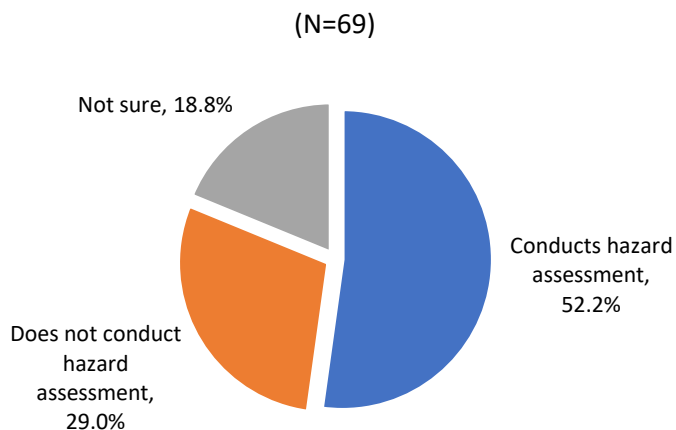
According to participants, environmental health is the most common program routinely overseeing public water systems smaller than the Safe Drinking Water Act threshold definition but larger than private wells (47.1%, N=68; see Figure 5). Approximately one-fifth of these systems (23.5%) are handled by the state’s department of environmental conservation (DEC), department of natural resources (DNR), department of environmental quality (DEQ), or similarly titled agency. Other states engage their drinking water programs, local health departments, engineering programs, or public utilities for this responsibility.

Figure 5. Programs Overseeing Moderately-Sized Public Water Systems



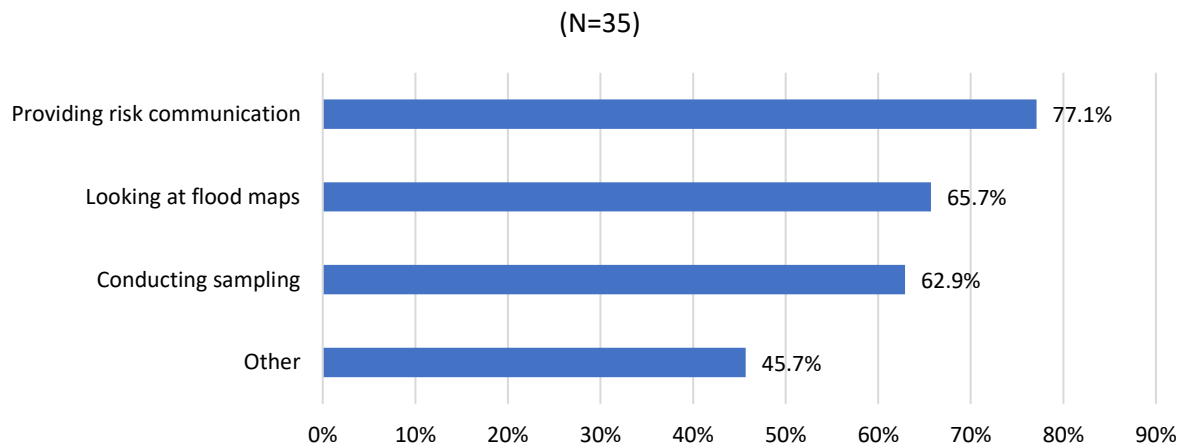
Most responding agencies (52.2%) conduct hazard assessments for wells that may have been impacted by emergency situations (see Figure 6).

Figure 6. Agency Activity Related to Hazard Assessments After Emergencies



Participants reported that their agencies conduct several hazard assessment activities (see Figure 7), the most common of which are providing risk communication (77.1%), looking at flood maps to assess local flood hazards and identify high-risk areas since they continually change due to land use, development, and other infrastructure changes (65.7%), and conducting water sampling (62.9%). Besides the options provided, participants also listed other activities, including providing action strategies and technical support, health risk assessments, and pre-construction plan review.

Figure 7. State and Territorial Health Agency Hazard Assessment Activities

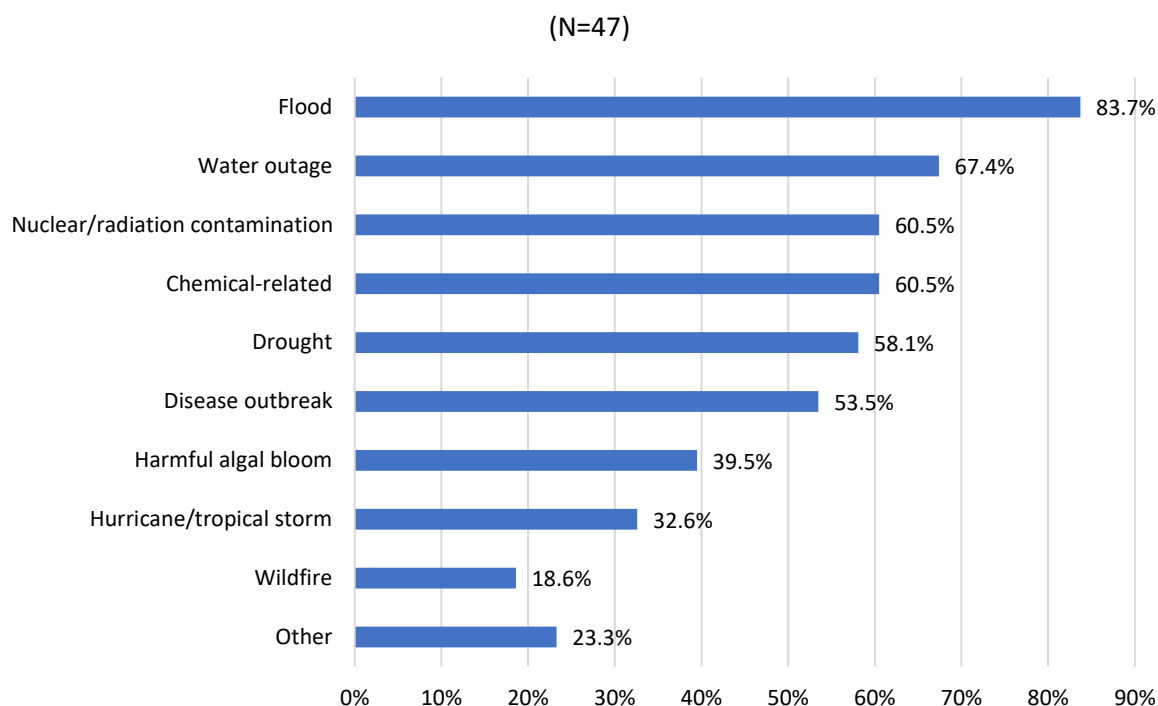


Participants also had the opportunity to list additional water activities that their program is responsible for. Most indicated specific forms of water quality monitoring and surveillance. Some examples include regulating drinking water systems, developing public health educational materials, and developing water use standards.

PREPAREDNESS PLANNING

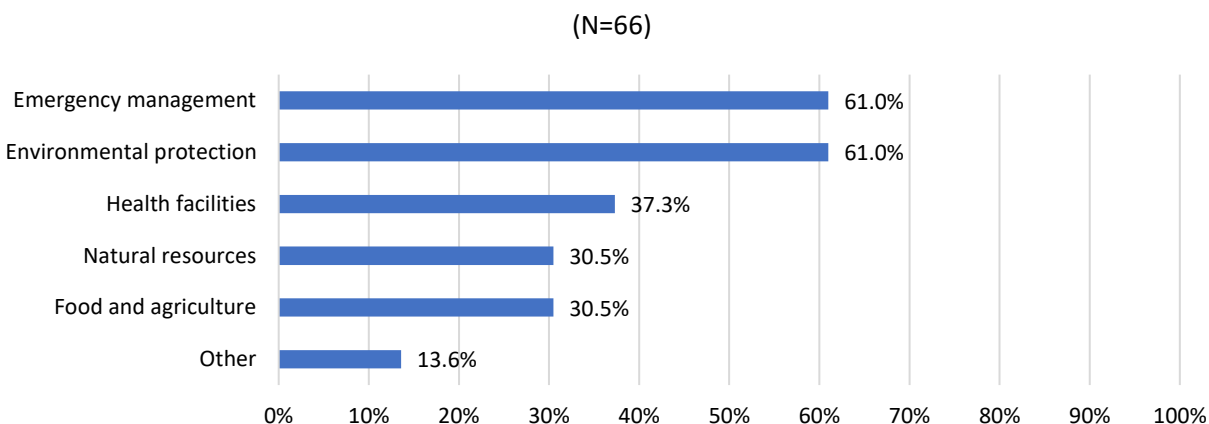
Most participants (73.8%, N=61) indicated that drinking water emergencies are included in their agencies' public health preparedness or all-hazards preparedness plans. Many responding jurisdictions call out specific types of emergencies in their plans (see Figure 8). Flooding is the most commonly addressed form of emergency, while harmful algal blooms, storms, and wildfires are less common concerns. Other identified hazards were extreme cold, water sanitation, and earthquake.

Figure 8. Events Included in Preparedness Planning



Most participants indicated that other agencies in their jurisdiction also include drinking water in their public health preparedness/all-hazards preparedness plans (see Figure 9), especially emergency management agencies (61%) and environmental protection agencies (61%). Besides the options provided, other agencies that address drinking water emergencies into their planning include local health and environmental health departments, homeland security departments, power authorities, and land grant agencies.

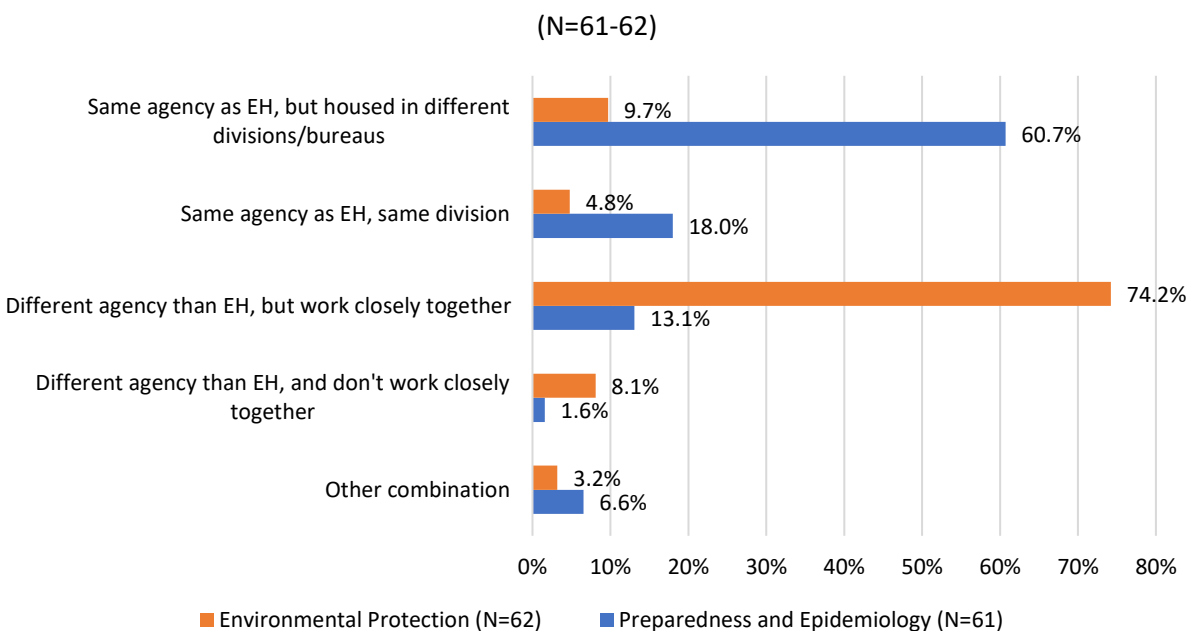
Figure 9. Offices Where Preparedness Plans Include Drinking Water Emergencies



RELATIONSHIPS BETWEEN PROGRAMS

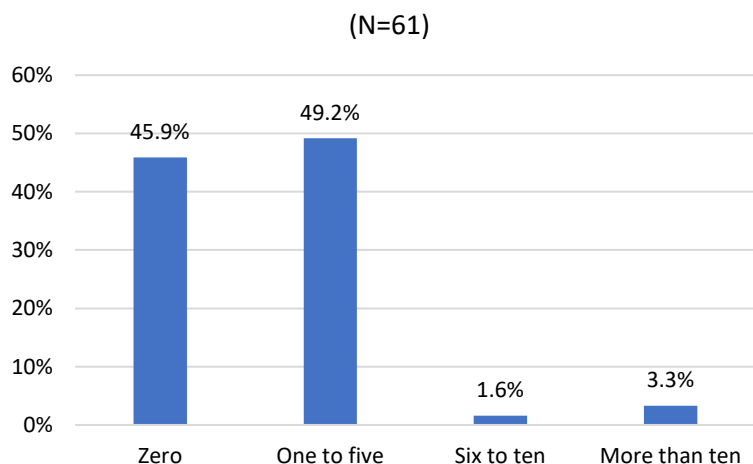
Participants noted the specific organizational relationships between environmental health (i.e., the division that handles activities such as food, water, toxicology, radiation, and vector control) and environmental protection staff, and between environmental health and preparedness and epidemiology staff in their agencies (see Figure 10). For most jurisdictions, all of these staff are in the same agency (60.7%). Environmental protection staff are more likely to be in a different agency (74.2%).

Figure 10. Relationships Between Departments of Environmental Health and Environmental Protection



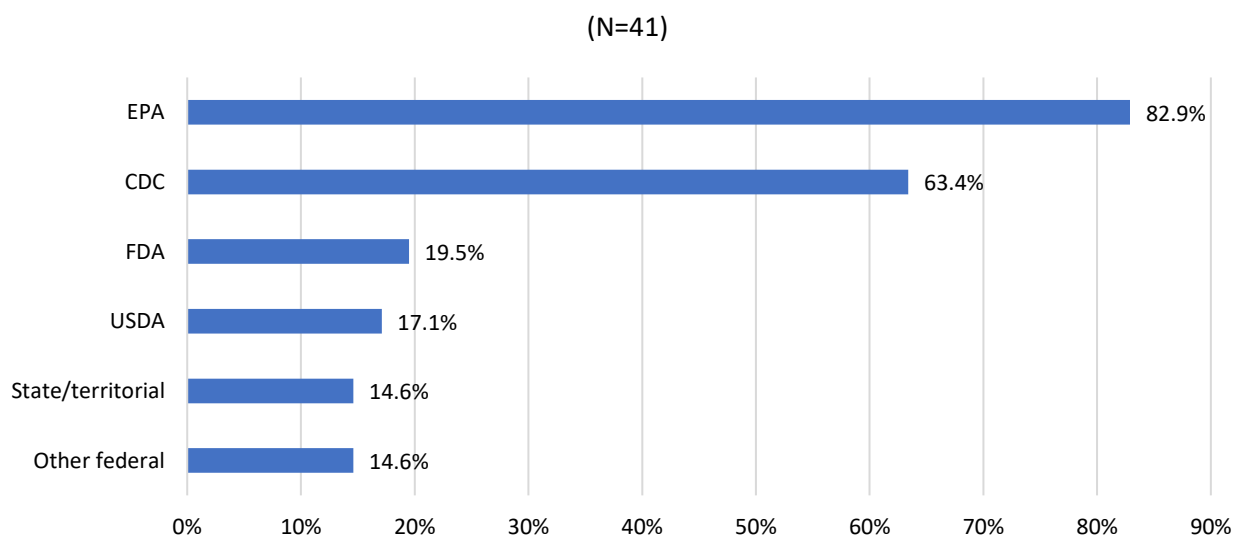
Most survey participants indicated that their program has an Incident Command Structure (ICS) (96.8%, N=61). Over the past two years, most of these programs stood up their ICS for drinking water emergencies between one and five times (49.2%) or zero times (45.9%). Two participants indicated they have stood up an ICS more than 10 times in the past two years (see Figure 11).

Figure 11. Incident Command System Stand Ups Over the Past Two Years



Most jurisdictions have reached out to federal or state or territorial partners such as the U.S. Environmental Protection Agency (EPA) (82.9%) or Centers for Disease Control and Prevention (CDC) (63.4%) for assistance during a drinking water emergency (see Figure 12).

Figure 12. Sources of Emergency Assistance

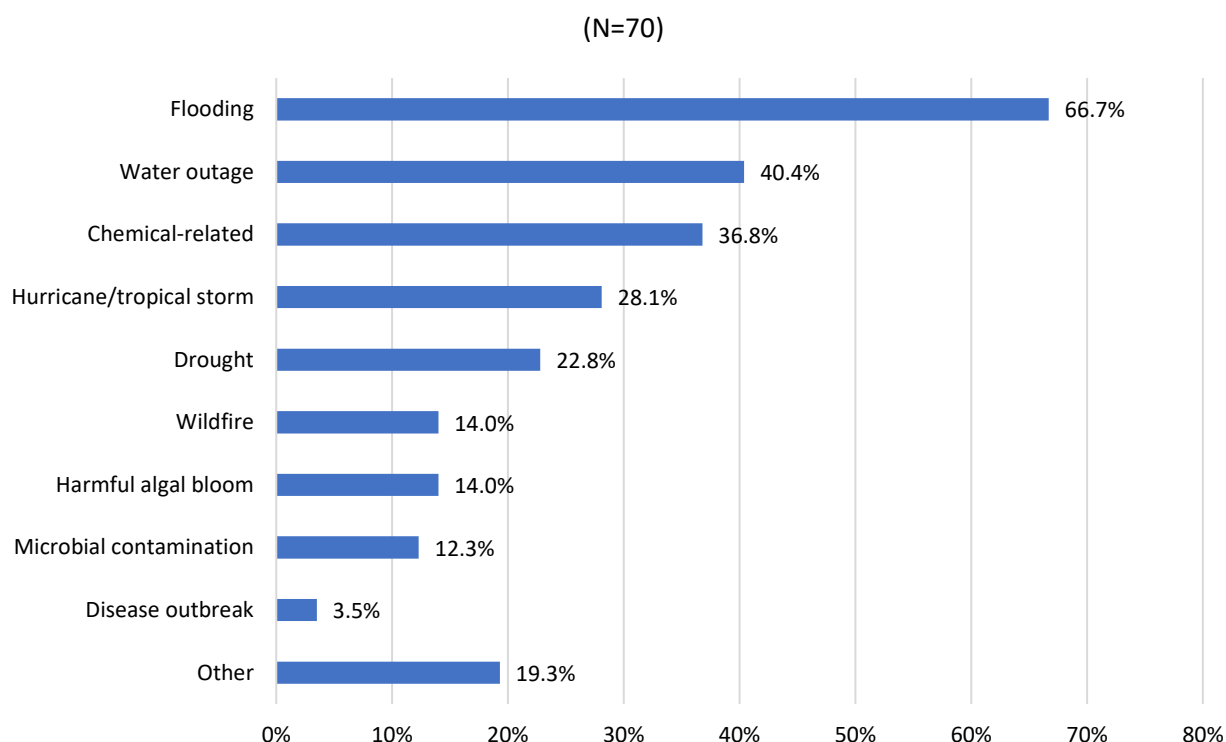


DRINKING WATER EMERGENCIES

The most common event precipitating a drinking water emergency is flooding, with approximately two-thirds of participants reporting a flooding-related emergency within the past two years. Some of these emergencies are listed in Figure 13, but 19.3 percent of participants reported other kinds of emergency events, including:

- Infrastructure failure
- Criminal activity
- River accidents
- Train accidents
- Extreme cold or frozen water lines
- Tornado

Figure 13. State and Territorial Drinking Water Emergencies During the Past Two Years



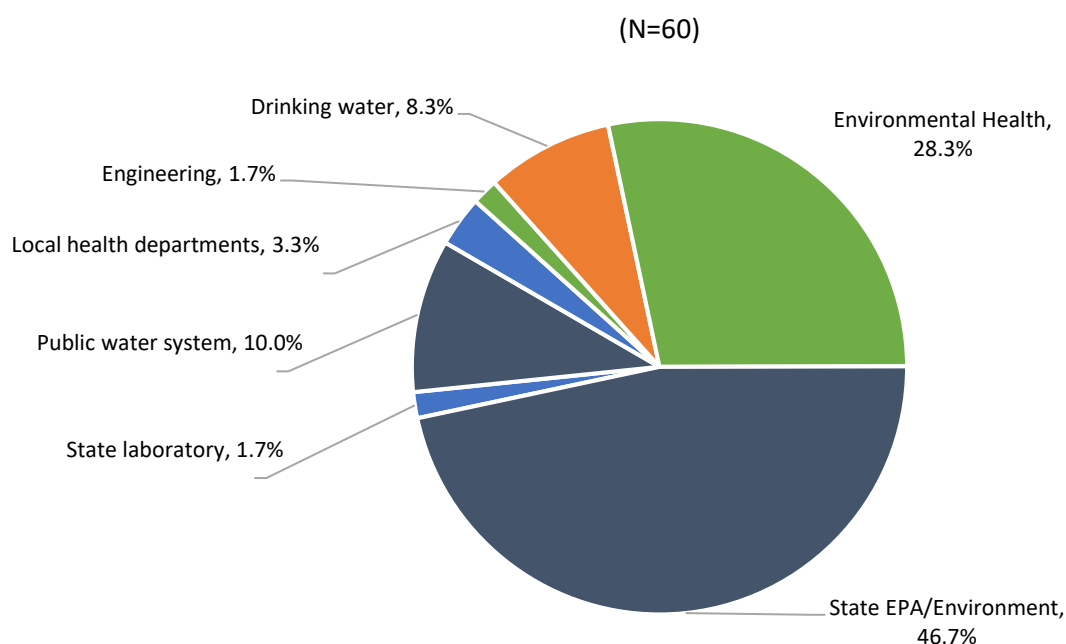
HEALTH ADVISORY LEVELS

The majority of participants (42.6%, N=61) reported that they use health advisory levels (HALs) for chemical test results that do not have maximum contaminant level (MCL) standards. Most participants (44.0%, N=25) indicated that an environmental health department creates HALs in their jurisdictions, while other participants indicated that their HALs were created by the U.S. EPA (28.0%) or their state or territory's department of environment (24.0%) or engineering services program (4.0%).

ROUTINE WATER SAMPLING

As Figure 14 shows, for the most part, respondents reported that routine water sampling is conducted outside of health departments by state EPA or environment departments (46.7%), public water system operators (10.0%), local health departments (3.3%), or state labs (1.7%). Respondents note that within health departments, routine water sampling is conducted by environmental health programs (28.3%), drinking water programs (8.3%), or engineering programs (1.7%).

Figure 14. Location of State and Territorial Health Agency Drinking Water Sampling Programs



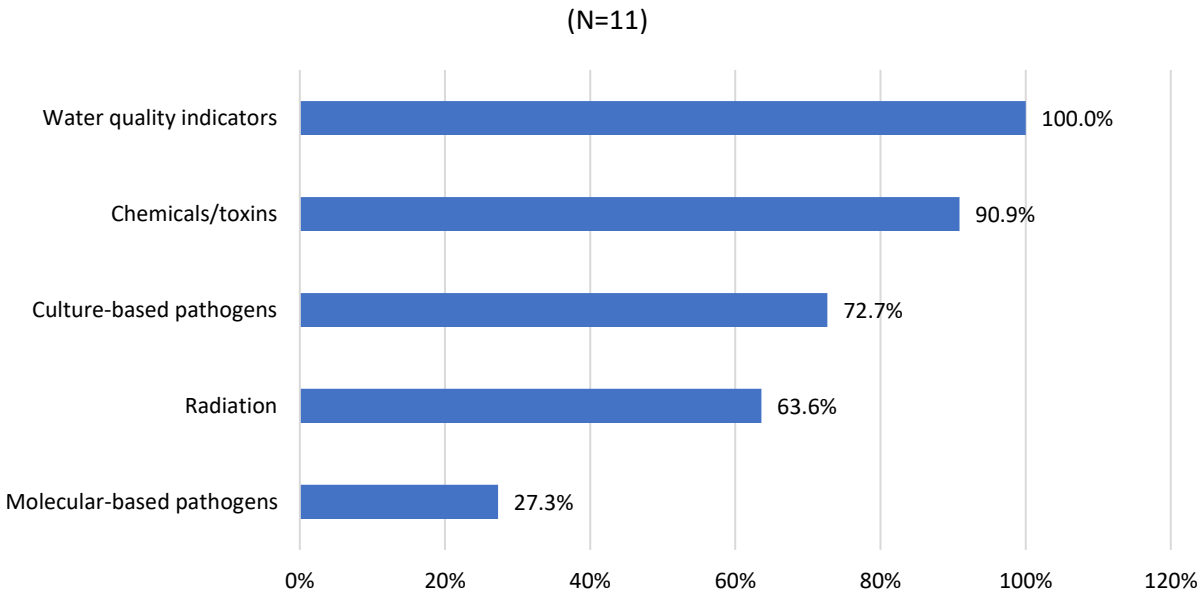
For those respondents who indicated that their department was responsible for routine water sampling, 36.4 percent (N=11) indicated that they can collect large water volumes of ten liters or more in a single sample. They also indicated which program was responsible for reporting water sampling results to the public. These include:

- Public water systems
- Engineering services programs
- Environmental affairs bureaus of water
- Drinking water programs
- Health agency safe drinking water branches
- Bureaus of laboratories and county health departments

All participants (N=11) indicated that their jurisdiction uses a state or territorial laboratory for testing routine water samples. Over half of respondents (54.5%) also use commercial laboratories, while one (9.1%) also uses a local public health lab. All of these labs are in the same state or territory as the health

agency. Most labs are used more than once a month (90.9%), but one respondent indicated that the lab is only used 1-3 times per year (9.1%). The labs used for routine water sample testing all have the capability to test for water quality indicators such as chlorine or coliforms (see Figure 15). The laboratories are also strong across several measures, with the lowest capability being molecular-based pathogens (27.3%).

Figure 15. State and Territorial Health Agency Routine Water Testing Capabilities



EMERGENCY WATER SAMPLING

The majority of participants work in a department that conducts (35.3%) or coordinates (45.6%) drinking water sampling in emergency situations. According to respondents, the other departments that hold these responsibilities are:

- Department of environmental protection
- Department of environmental services
- Environment department
- State or territorial environmental protection agency
- Agency of natural resources
- Department of environmental conservation
- Local health authority
- Environmental quality protection board

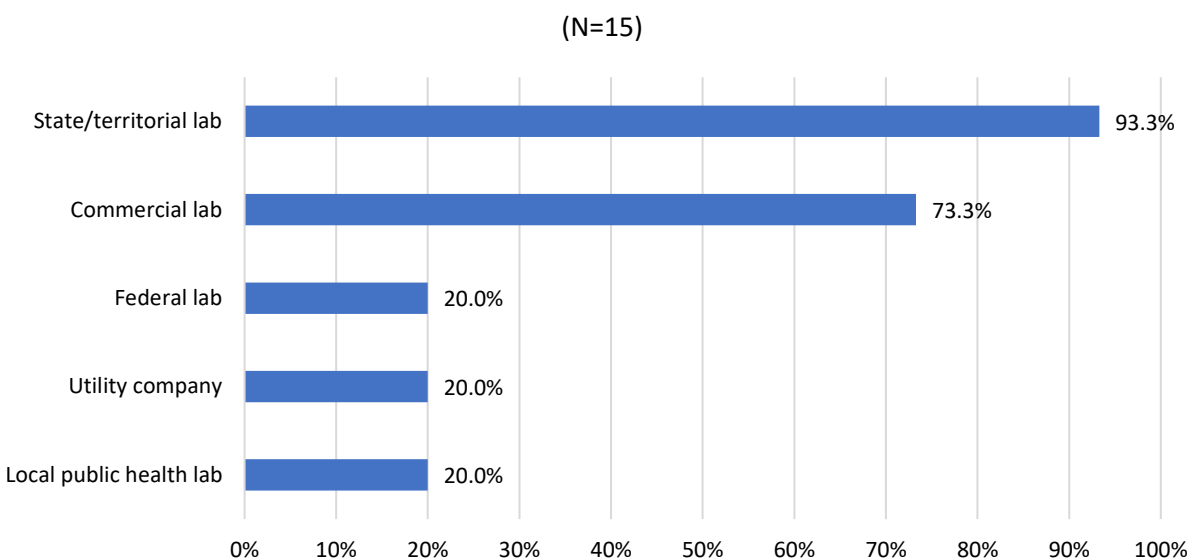
Participants report that during an emergency, the programs responsible for reporting sample testing results to the public include:

- Drinking water
- Environmental health
- Local health departments
- Engineering services
- Public health lab
- Public water system
- Environmental quality
- Natural resources

For most respondents (68.8%, N=48), the laboratory resources used in emergency situations are the same as those used for routine water sample testing. For the remaining 31.3 percent of jurisdictions that use different laboratories during emergencies, 53.3 percent report that these programs can collect large water volumes of ten liters or more.

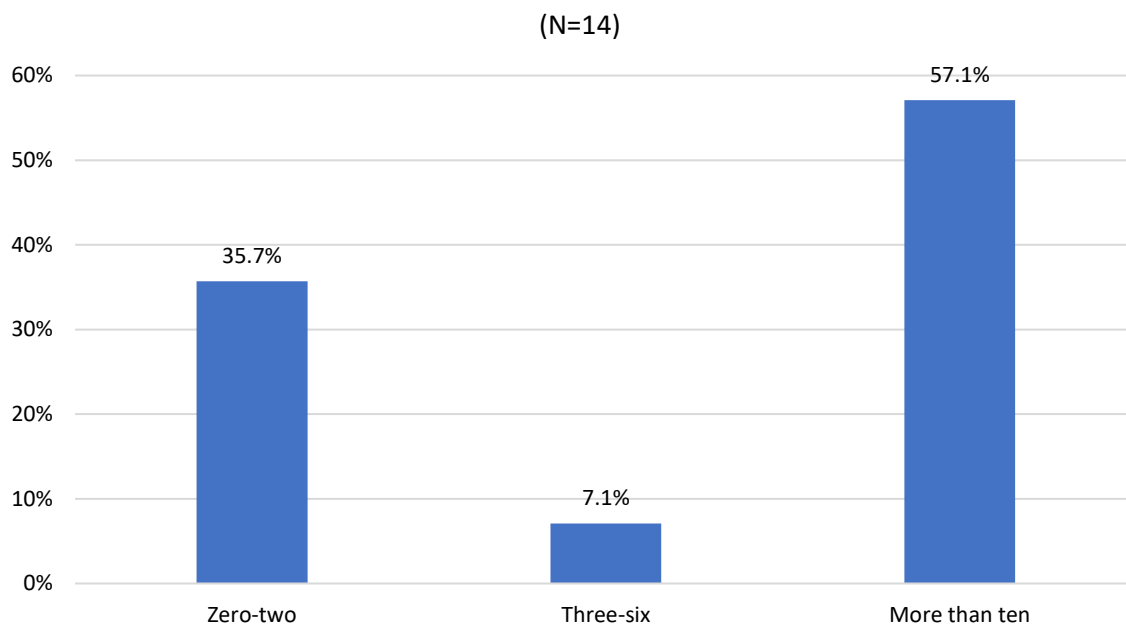
Jurisdictions use a greater variety of laboratories for water sample testing in emergency situations than for routine sampling. While most jurisdictions use a state or territorial lab for this work (93.3%), many also engage a commercial lab (73.3%), or other labs, such as a federal lab, utility company, or local public health lab (see Figure 16). Most jurisdictions use laboratories in their own state (60.0%), but 33.3 percent use both in-state and out-of-state labs, and 6.7 percent primarily use out-of-state labs.

Figure 16. Laboratories Used for State Water Testing During Emergencies



As Figure 17 notes, most responding jurisdictions used their emergency labs more than 10 times in the past 12 months (57.1%).

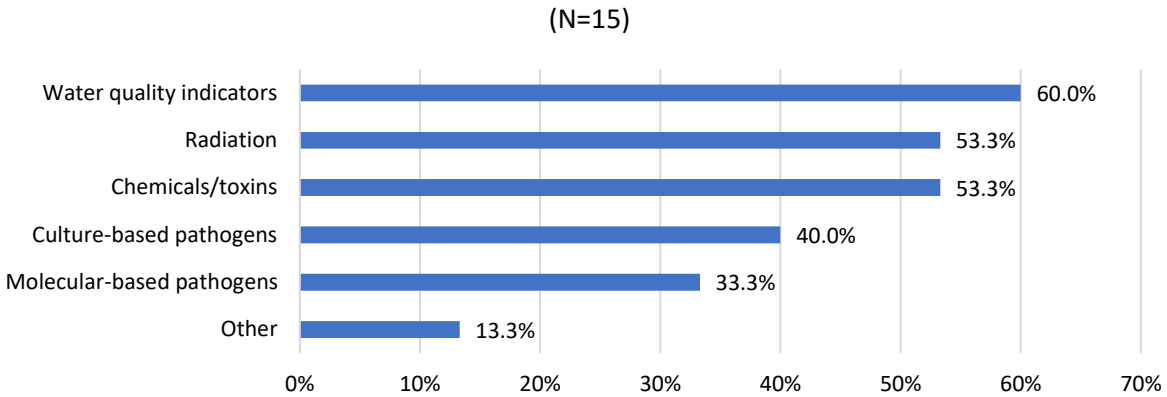
Figure 17. State and Territorial Health Agency Lab Use of Emergency Lab Over 12 Months



Participants were asked to identify the testing capacities of the laboratories they use in emergency situations (if it is not the lab they use for routine sampling) (see Figure 18).¹ These labs could have increased capacity from their home labs, both in terms of volume and capability. From these results, we see that most jurisdictions utilize emergency labs with testing capabilities for water quality indicators, radiation, and chemicals or toxins. Less than half of respondents' emergency labs can test for culture-based and molecular-based pathogens. Two participants indicated that they use different labs with varying capabilities.

¹ Due to a programming error, participants were unable to select multiple options for this question, although most used the text box provided beside "other" to list multiple options.

Figure 18. Capabilities of Emergency Labs



DIFFERENCES IN HEALTH AGENCY-MANAGED DRINKING WATER ACTIVITIES

The majority of survey participants’ jurisdictions manage drinking water activities in their health agencies (64.1%). Below, we investigate whether there are differences between jurisdictions where drinking water is health agency-managed and jurisdictions where it is managed by other entities. (Because the sample sizes in many of these categories are very small, we cannot determine whether these differences are statistically significant.)

The percentage of agencies that include drinking water emergencies in their public health preparedness or all-hazards preparedness plans is similar to the percentage of programs where drinking water activities are health agency-managed and where they are not (see Figure 19). The same is true for the presence of ICS for water emergencies (see Figure 20). Similarly, there are few differences in how often agencies stand up ICS in these jurisdictions (see Figure 21).

Figure 19. Drinking Water Emergencies in Preparedness Plans

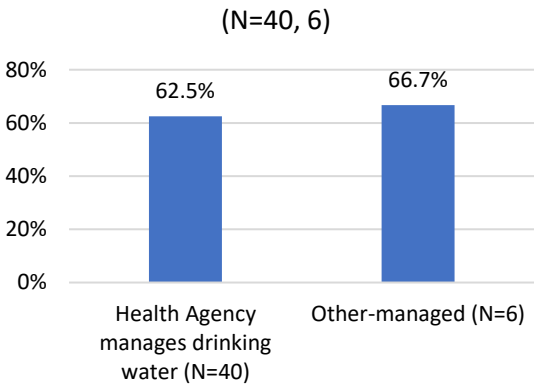


Figure 20. ICS Presence

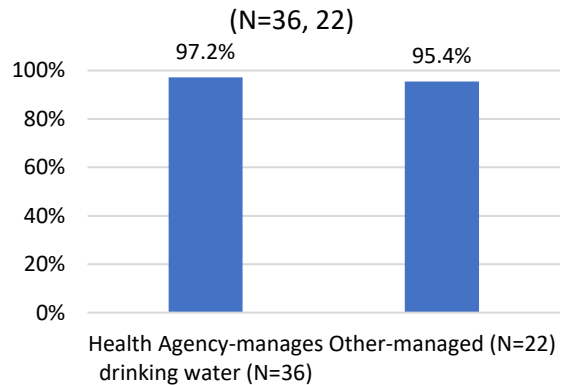
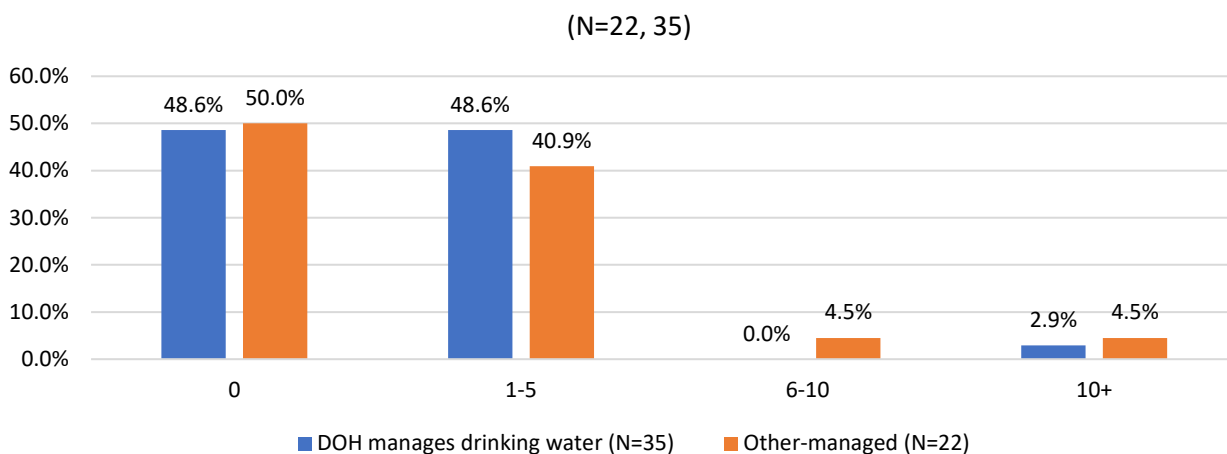
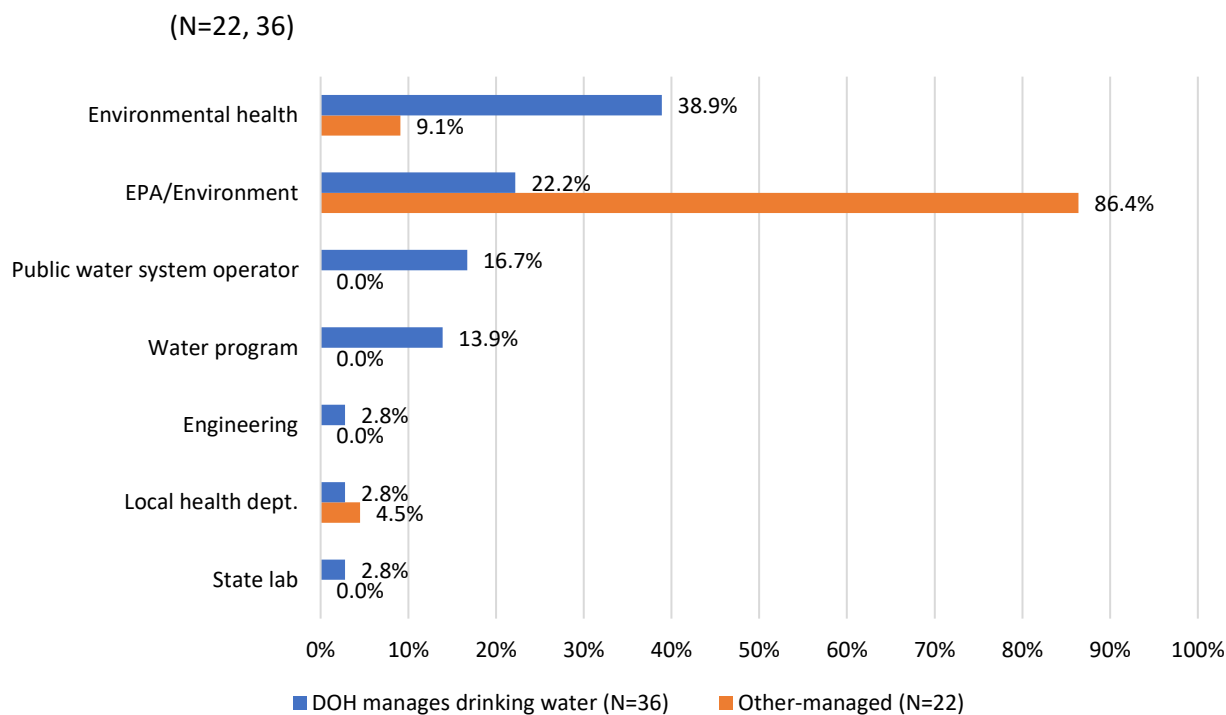


Figure 21. ICS Stand Ups in Two Years



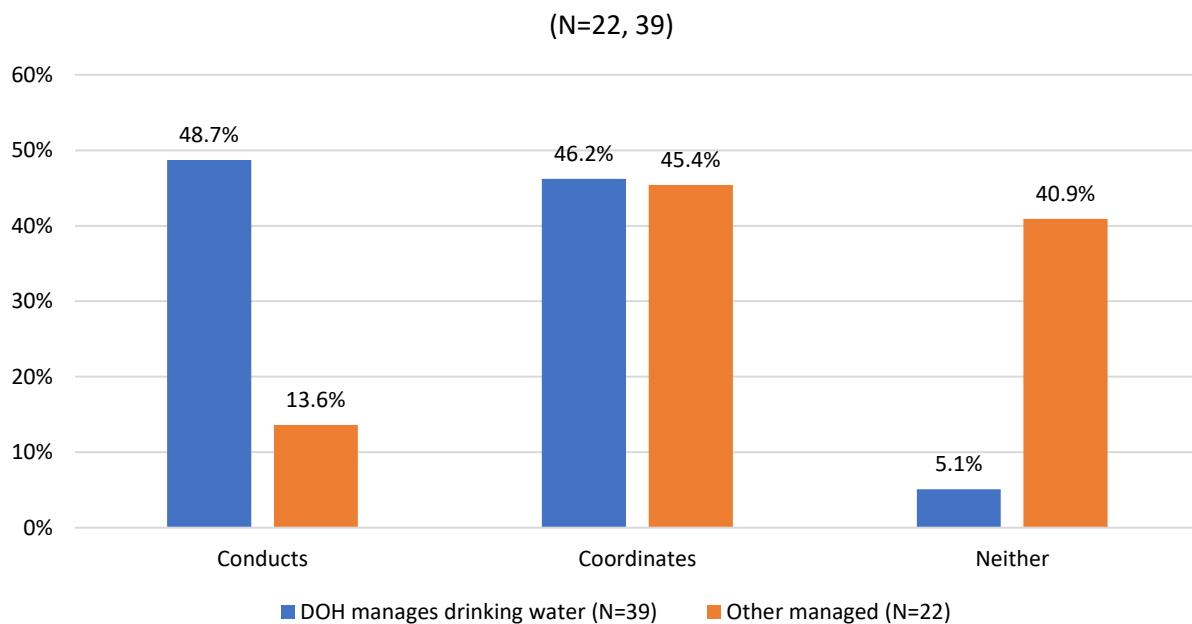
According to respondents, in jurisdictions where the health agency manages drinking water activities, routine water sampling is more likely to be conducted by the state or territorial environmental health program (38.9%). In other participating jurisdictions, the department of environment or state EPA is by far the most common office responsible for water sampling (86.4%).

Figure 22. State and Territorial Health Agency Programs that Conduct Routine Water Sampling



According to respondents, in jurisdictions where the health agency manages drinking water activities, it is also more likely to conduct drinking water sampling (48.7%). Respondents also noted that in jurisdictions where another department manages drinking water activities, the health agency is less likely to conduct or coordinate sampling (40.9%). In an approximately equal number of jurisdictions, the health agency coordinates drinking water sampling regardless of whether or not it manages drinking water activities (see Figure 23).

Figure 23. State and Territorial Health Agency Responsibility for Drinking Water Sampling



LEGISLATION FOR OBTAINING CLEARANCE

Survey participants were asked to explain their state or territorial legislation or administrative requirements for obtaining clearance for drinking water after an issue is found. However, 33.2 percent (N=31) of respondents indicated that they were unsure or did not understand the question. The remainder listed an assortment of federal laws, state or territorial laws and statutes, and department regulations. Examples of these laws include:

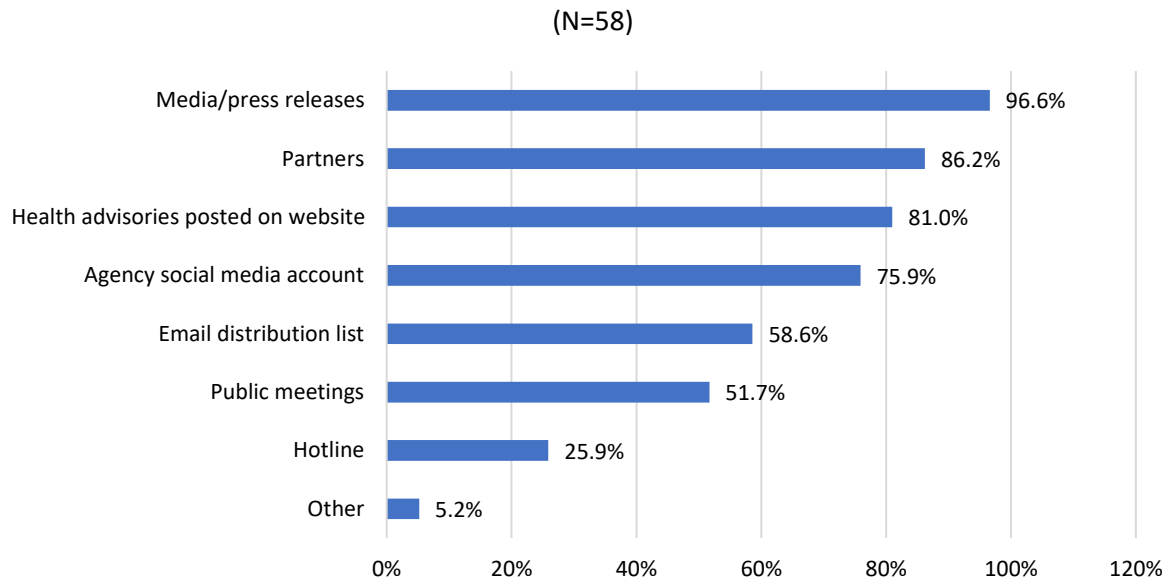
| | |
|------------------------------|---|
| Federal laws | <ul style="list-style-type: none"> • Safe Drinking Water Act |
| State/territorial-level laws | <ul style="list-style-type: none"> • State statutes on drinking water or public water systems • State regulations • State advisory levels • Public health laws • Plumbing license laws |
| Agency-level regulations | <ul style="list-style-type: none"> • Health agency regulations |

| | |
|--|---|
| | <ul style="list-style-type: none"> • Department of natural resources regulations • Public drinking water standards • <i>“Two clear samples one day apart.”</i> • <i>“Two negative samples from the public health laboratory with local government concurrence.”</i> |
|--|---|

COMMUNICATION

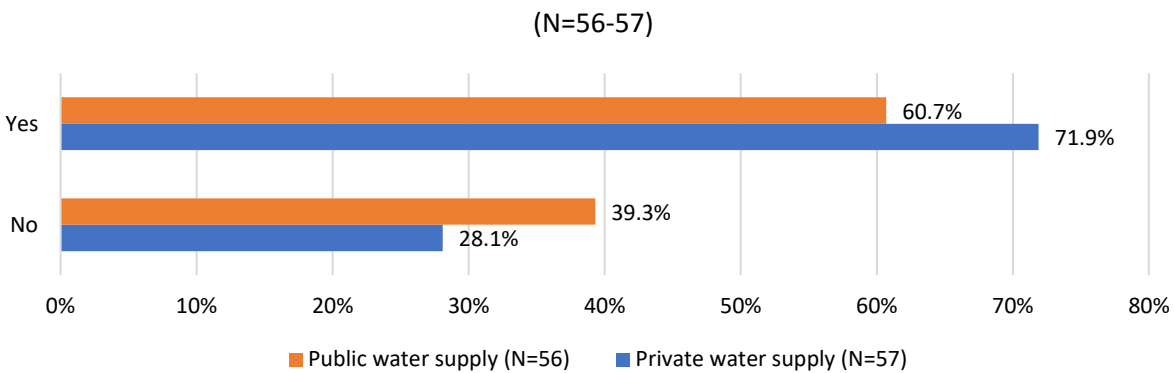
The responding jurisdictions have different strategies for communicating with the public during a drinking water emergency. It’s very common for these jurisdictions to use media or press releases (96.6%), partners such as water system operators (86.2%), websites (81.0%), and social media (96.6%) (see Figure 24). Other communication strategies that participants noted include reverse 911, health alert messages, and direct notices.

Figure 24. Water Emergency Public Communication Strategies



Most responding jurisdictions provide inspectors with guidance materials about clearing for use water systems after a public health emergency for both private and public water supplies (see Figure 26). According to respondents, these materials frequently include guidance for boil water notices for food service companies and food processors (87.8%, N=49), locations with private wells (81.6%), and healthcare and other critical water use facilities (81.6%). Other respondents (14.3%) also include guidance for boil water notices for jurisdictional waterworks, public health agencies, government buildings, and child care facilities.

Figure 25. Guidance Materials Provided for Inspectors After Water Emergencies



Most participants responded that their program provides factsheets for the public for commonly found chemicals with MCLs or health advisories (63.0%, N=46). However, most participants (52.4%, N=21) also indicated that they would like to have additional guidance materials on the following topics:

- Unregulated contaminant monitoring rules.
- Commonly found chemicals and related health information.
- Per- and polyfluoroalkyl substance (PFAS) guidance materials.
- Coal ash ponds.
- Water quality guidance for private wells.
- Guidance on responding to emerging contaminants.
- Assessments.
- Videos on water issues.
- Best and promising practices, expert recommendations, and emerging issues.

FUNDING

Jurisdictions use various funding mechanisms to support necessary activities, such as response and lab testing, during a drinking water emergency. The table below provides respondent comments about these funding mechanisms.

| Theme | Total # of Respondents | Examples |
|-------|------------------------|---|
| State | 13 | <ul style="list-style-type: none"> • <i>Limited reserve funding. Special legislative session funding as necessary.</i> • <i>Emergency response funding for a declared emergency (governor declared).</i> • <i>For private water wells, [State] has a "grants to counties" program that provides funding supported by taxes on the sale of pesticides. This funding is used to support grants to local boards</i> |

| | | |
|--------------------|----|---|
| | | <i>of health for the testing, repair/renovation, and plugging of private water wells.</i> |
| Agency/department | 14 | <ul style="list-style-type: none"> • <i>Public Health Emergency Preparedness (PHEP) funding.</i> • <i>Department general funds.</i> |
| Other | 6 | <ul style="list-style-type: none"> • <i>Water system operators [are] responsible for costs.</i> • <i>U.S. EPA grants (e.g., Drinking Water State Revolving Funds)</i> • <i>Funding from the water quality analysis fee collected on each connection can be leveraged for limited laboratory testing. Other testing is a cost for the property owner, even if we do the test.</i> |
| No emergency funds | 8 | <ul style="list-style-type: none"> • <i>No dedicated funding mechanism for emergencies.</i> • <i>Not sure. Would rely on state emergency management agency or FEMA depending on the scope of the emergency. Possibly tap into Public Health and Emergency Preparedness (PHEP) funds.</i> |

LEGISLATION

Participants were asked to identify legislation or policies at the state or territorial level that are supportive of, or challenging to, drinking water emergency response efforts. The table below provides some of the participant responses to this question.

| Theme | Example of Most Supportive Legislation | Examples of Most Challenging Legislation |
|-------------|--|--|
| State-Level | <ul style="list-style-type: none"> • <i>[Water authority] primacy for drinking water; authority to permit location and construction of private wells.</i> • <i>We have a state regulation for emergency management and disaster administration... This law brings us the opportunity to request all the resources needed during an emergency.</i> • <i>General emergency management law that allows the governor broad authorities in a disaster to protect the health of [the public].</i> | <ul style="list-style-type: none"> • <i>Lack of specific state funding for emergency response and [environmental health] programs.</i> • <i>Unregulated drinking water sources...do not qualify for support during an emergency response (at a state level).</i> • <i>Continuous review and update of state statutes to effectively deal with spontaneous and or emerging events.</i> |

| | | |
|--------------|--|--|
| Agency-Level | <ul style="list-style-type: none"> • <i>The department of public health's general authority to designate public health emergencies has provided the authority needed to address water related emergencies.</i> • <i>Public health sanitation laws.</i> | <ul style="list-style-type: none"> • <i>Limited authority on private wells.</i> |
|--------------|--|--|

Many participants indicated that they could not think of a response to this question or else responded with general challenges unrelated to legislation. Challenges with this question generally reflected frustration with inadequate state or territorial emergency funding and a lack of authority over certain emergency events or water sources. Supportive legislation reflected policies that bolster the authority of the water preparedness program or provide additional resources in an emergency.

Participant comments about other policy considerations that regularly factor into drinking water sampling and the preparedness planning process include:

- *Priorities and roles of different agencies with jurisdiction over emergency events.*
- *Laboratory capacity (personnel, fiscal resources), and protocols.*
- *Public perception and politics...when talking about [Per- and polyfluoroalkyl substances] drinking water contamination in communities.*
- *Assuring the water supply and distribution facilities are deemed safe prior to lifting a health advisory. Treatment, maintenance/repair activities, inspection/assessment, and sampling are all part of the information we will evaluate before lifting a health advisory.*
- *Boil water advisories.*
- *Testing and maintaining safe drinking water during disaster events.*
- *Inter-agency agreements, defined roles and responsibilities, levels of authority, [and] instant availability of funding sources and response capabilities.*
- *Home rule.*
- *Continuous review and updating of existing state policies and procedures.*
- *EPA mandate policy.*
- *Funding availability.*

SUMMARY

There are many commonalities in ways that state and territorial health agencies organize their water preparedness activities, but also some differences. The same is true for processes they have in place to prepare for and respond to water emergencies.

While most respondents to our survey represented state environmental health programs, repeated references to other state and territorial agencies, like departments of natural resources, conservation, and environmental services (“environment departments”) indicate that organizational water preparedness responsibilities vary and are frequently integrated across agencies. This is also true for work involving private wells and water sampling. According to survey participants, typically the program in charge of these duties does not change during an emergency.

Most responding jurisdictions conduct hazard assessments for wells that may have been impacted by water emergency situations, and these activities typically include risk communication; analyzing flood maps to assess local flood hazards and identify high-risk areas and other infrastructure changes; and conducting sampling. In addition, most responding jurisdictions include drinking water emergencies in their agencies' public health preparedness or all-hazards preparedness plans. Further, flooding, radiation contamination, drought, and disease outbreaks are all frequently included in these plans. Emergency management and environmental protection programs also frequently include drinking water emergencies in their preparedness planning.

According to participants, environmental health staff are frequently in the same state agency as preparedness and epidemiology staff, even if they are in different divisions or bureaus. However, environmental protection staff are more commonly found in different agencies from preparedness and epidemiology staff. Most programs have an Incident Command Structure that has stood up between one and five times in the past two years for a drinking water emergency. In addition, most jurisdictions have reached out to federal or state and territorial partners such as EPA or CDC for assistance during a drinking water emergency. The most common types of drinking water emergencies in the past two years are flooding, chemical-related, and water outage.

Respondents noted that all jurisdictions use state or territorial laboratories for testing routine water samples, although they sometimes use other labs. These labs are always in the home state and are used regularly (more than once a month). These labs also have a broad array of capabilities, and a minority are able to conduct testing for molecular-based pathogens. In most cases, the laboratories used in emergencies are the same as those used for routine testing, but the variety of labs tends to be greater in an emergency situation. Most responding jurisdictions used these emergency labs more than ten times in the past twelve months.

According to survey participants, state environmental health and preparedness programs generally communicate with the public through media or press releases, partners, health advisories posted online, and social media accounts. Most programs have both guidance materials for inspectors regarding clearing water systems and factsheets for commonly found chemicals. Most participants are satisfied with the guidance materials they already have.

Participants provided varying levels of specificity about water emergency-related legislation, policies, and requirements. Additional data are needed on these topics. Participants cited many funding mechanisms for supporting necessary activities, such as response and lab testing, during a drinking water emergency. Some participants listed their standard funding mechanisms, while other cited special funding sources that only kick in during emergency situations. Participants indicated a combination of federal, state, and agency-level legislation, statutes, requirements, and policies that affect their work, generally being in favor of policies that increase program authority and access to resources in emergency situations, and a strong awareness of standards set by the Safe Drinking Water Act.

REFLECTIONS

There are robust programs in place to prepare for, and respond to, the growing number of water emergencies facing the United States. However, there is also room for increased coordination among programs to align their activities and communication in a more impactful manner. It is clear that water preparedness is a shared responsibility between not only epidemiology, environmental health, and preparedness programs in state and territorial health agencies, but also between the health agencies and other governmental sectors and entities having authority and responsibility in this space. The compilation and analysis of the data provided in this report is one effort to understand the complexities of water preparedness and identify strength, as well as areas of improvement for the future. Moving forward, linkages between environmental health, public health labs, environmental protection, and public health emergency management will continue to be examined with an eye toward promoting improve program communications, coordination, and integration; and the sharing of best practices. These linkages are integral to successful management and mitigation of public health emergencies, including drinking water emergencies.

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