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New *Drinking Water Advisory Communication Toolbox*

Editor's Note: NEHA strives to provide up-to-date and relevant information on environmental health and to build partnerships in the profession. In pursuit of these goals, we feature a column from the Environmental Health Services Branch (EHSB) of the Centers for Disease Control and Prevention (CDC) in every issue of the *Journal*.

In this column, EHSB and guest authors from across CDC will highlight a variety of concerns, opportunities, challenges, and successes that we all share in environmental public health. EHSB's objective is to strengthen the role of state, local, and national environmental health programs and professionals to anticipate, identify, and respond to adverse environmental exposures and the consequences of these exposures for human health. The services being developed through EHSB include access to topical, relevant, and scientific information; consultation; and assistance to environmental health specialists, sanitarians, and environmental health professionals and practitioners.

The conclusions in this article are those of the author(s) and do not necessarily represent the views of the CDC.

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A drinking water advisory is issued by the local water system authority whenever water quality in a system has been compromised. A water system authority must act quickly and coordinate closely both within its own organization and with its state drinking water primacy agency and other partners in order for a water advisory to be effective. The water advisory is intended to inform potentially affected persons and organizations such as schools, hospitals, food facilities, and businesses of the situation and to identify immediate actions required to prevent possible adverse health effects. Implementing an effective water advisory can present many challenges for a water system authority and its partners.

Recognizing the challenges associated with issuing effective water advisories, the Centers for Disease Control and Prevention (CDC), U.S. Environmental Protection Agency (U.S. EPA), American Water Works Association, Association of State and Territorial Health Officials, Association of State Drinking Water Administrators, and NEHA collaborated to develop the *Drinking Water Advisory Communication Toolbox*. The toolbox includes guidance, recommendations, instructions, templates, and other tools to help communities with all phases of water advisories (Figure 1).

A technical work group composed of public health, drinking water agency, and drinking water system authorities and experts advised on and guided development of the toolbox. A broad cross section of relevant stakeholders and technical experts including local government, emergency response, and hazard communication personnel also were engaged.

FIGURE 1

Toolbox Flow Chart

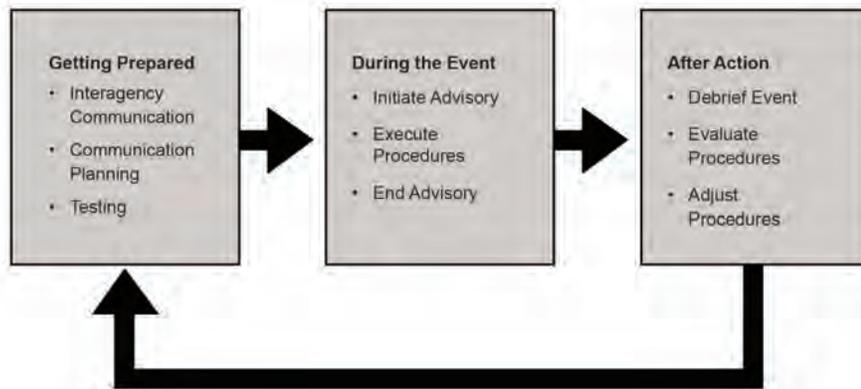


FIGURE 2

Drinking Water Advisories

Informational	Boil Water	Do Not Drink	Do Not Use
(lesser) → Severity of situation → (greater)			
Public encouraged to take immediate action →			
<p>Occasional</p> <p>Used for range of purposes:</p> <ul style="list-style-type: none"> • Failure to meet drinking water standards with non-acute endpoints or administrative requirements • Efforts to build rapport with customers • Customer education to increase preparedness for emergencies • Water conservation messaging 	<p>Frequent</p> <p>Used for potential or demonstrated microbial contamination:</p> <ul style="list-style-type: none"> • Low/loss of pressure • Tier 1 microbial violation (e.g., high turbidity, positive <i>E. coli</i>) • Natural disasters (e.g., flooding, hurricanes) • Vandalism 	<p>Infrequent</p> <p>Used for potential or demonstrated contamination that could cause acute health effects:</p> <ul style="list-style-type: none"> • Nitrite/nitrate MCL* violation • Chemical overfeed into the water supply 	<p>Rare</p> <p>Used for caution due to risk associated with lack of sanitation and fire protection:</p> <ul style="list-style-type: none"> • Microbial, chemical, or radiological contamination in which any contact is hazardous to public health • Error in treatment leading to water with a high or low pH that could lead to chemical burns

*Maximum contaminant level.

This figure shows the range of situations that might trigger a water advisory and the type of advisory that would be issued in each situation.

More than 500 documents related to implementing water advisories including protocols, regulations, and other resources were reviewed and nearly 100 interviews were conducted with representatives from water systems, primacy agencies, and local public health departments in the United States and Canada by the technical work group. Review of this information revealed the following:

- Water advisory content varies widely from state to state and community to community.
- Water advisories are common in some states and rare in others.
- Major incidents and disasters are the primary reasons for collaboration between drinking water systems and health departments.
- Terminology used for water advisories is often inconsistent.
- Templates and advisory content are often difficult to change or adapt to specific audiences or needs.
- The U.S. EPA *Public Notification Handbook* is the primary information source for drinking water advisories.
- A wide variety of agencies may be responsible for communicating with specific institutions such as hospitals, schools, and restaurants.
- Good relationships between water systems and local public health departments often are dependent on established relationships between specific persons.
- Local health departments may lack the resources or expertise to address drinking water issues.
- Local health departments are willing to provide consultation to the water system authority.

Four basic types of drinking water advisories are used. “Informational” advisories announce planned or anticipated changes in water quality and provide advice on appropriate action. “Boil water” advisories, the most common type of advisory, typically are issued because of concern about microbial contamination; the advisory may be either precautionary or mandatory. “Do not drink” advisories direct customers to use an alternative source of water and are typically issued because of concern about chemical contamination. “Do not use” advisories instruct customers not to use tap water for any purpose, including flushing toilets and bathing. “Do not use” advisories are issued only if microbial, chemical, or radiological contamination undoubtedly has occurred and any water contact can be dangerous (Figure 2).

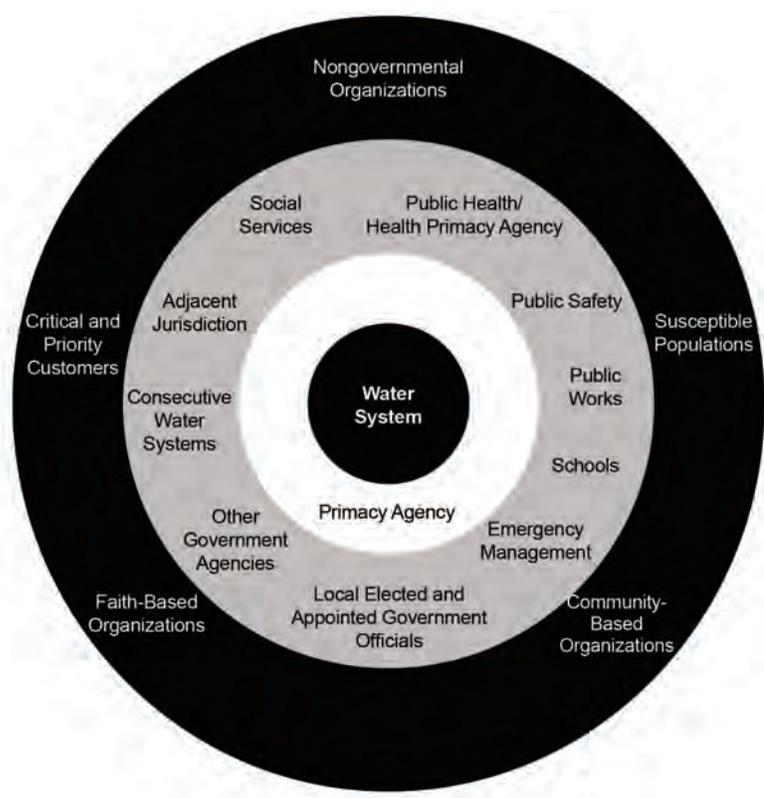
Effective collaboration, communication, and cooperation among the water system authority, state drinking water primacy agency, the health department, other public agencies, and private organizations before an actual event occurs are critical. These activities provide the best opportunity to determine existing resources, quickly and effectively distribute advisories, develop protocols that ensure coordinated and consistent messaging, and appropriately share the responsibilities and communication tasks appropriately among partners (Figure 3).

The issuance of drinking water advisories can increase dramatically following natural disasters such as floods, hurricanes, and earthquakes. The resources provided in the toolbox will help drinking water systems and their partner agencies plan for and implement effective water advisories during both routine and emergency situations. The toolbox and other information related to water and emergencies can be accessed on the CDC Healthy Water Web site at www.cdc.gov/healthywater/emergency/drinking_water_advisory/index.html. 🗺️

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FIGURE 3

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