Drinking Water Advisory Communication Toolbox (DWACT): Challenges for Foodservice and Healthcare

Jonathan Yoder
Epidemiologist, Waterborne Disease Prevention Branch

Vince Radke
Sanitarian, National Center for Environmental Health

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U.S. Drinking Water History & Future

- **Safe Drinking Water:** A cornerstone of public health
- **Treated water:** one of the greatest public health achievements of the 20th Century
- **Preventing water-related disease and outbreaks**
  - Strengthen collaboration between utilities and state & local public health

San Antonio Water History

• Water abundance
• Early canals – 1720
• Served as both water source and waste disposal
• Worked adequately until the cholera epidemics of 1849 and 1866
Waterborne disease in US: a developed world paradigm
WHY DO WE NEED A TOOLBOX?
Aging Water Infrastructure

- ASCE water infrastructure grades: D-
- 240,000 water main breaks per year
- Drinking Water Advisories happen frequently, and we need to be prepared

What is a Drinking Water Advisory

- Public notice issued by water systems and state or local agencies when they believe water quality is or may be compromised
- Mandated by EPA
- Advisories tell individuals, schools, hospitals, businesses, and others about the situation and how to take immediate action
  - boil tap water before drinking
  - avoid drinking tap water
  - avoid using tap water
Communication Challenges

- After action meeting in large water system
- Many agencies involved
- Lines of communication unclear
- Area where CDC could play a role
CDC Mission

Collaborate to create the expertise, information, and tools that people and communities need to protect their health – through health promotion, prevention of disease, injury and disability, and preparedness for new health threats

http://www.cdc.gov/about/organization/mission.htm
DEVELOPMENT OF THE TOOLBOX
Drinking Water Advisory Toolbox Project

- **Goal:** To provide a practical toolkit based on identified best practices used by others

- **What it is**
  - Collaborative effort
  - Covers a wide range of potential events
  - Logical process
  - Tools & templates
  - Resources

- **What it isn’t**
  - “Cookbook” approach
  - Replacement for regulatory requirements
Project Team

- AWWA & CDC
- Partners, Collaborators, Contributors, Reviewers
  - AMWA
  - ASDWA
  - ASTHO
  - EPA
  - NEHA
  - State & Local Public Health agencies and water authorities
  - Public & Private Drinking Water Systems
  - Aqua Vitae
  - King’s College - London
USING THE TOOLBOX
Healthy Water

Resources

Public Health & Medical Professionals
Aquatics, Water Utilities, & Other Water-related Industries

Publications, Data, & Statistics

A-Z Topic Index

ABCDEF
GHIJKLMNOPQRSTUVWXYZ

Healthy Water Topics

Drinking Water
- Public Water Systems
- Private Water Systems
- Water Fluoridation
- Camping, Hiking, Travel
- RWIIPW 2012
- Swimming Report

Healthy Swimming / Recreational Water
- Pools and Spas
- Oceans/Lakes/Rivers
- Injury and Skin Cancer
- Recreational Water
- Illnesses

Global Water, Sanitation, & Hygiene (WASH)
- Community Systems
- Household Treatment & Storage
- Sanitation and Hygiene
- Travelers’ Health

Other Uses of Water
- Agricultural, Industrial, Medical

Water-related Emergencies & Outbreaks
- Safe Water, Wastewater, Hygiene, Public Health Toolkits

Water-related Hygiene
- Handwashing, Body Washing, Facial Cleanliness, Hygiene Etiquette

Where to find it: www.cdc.gov/healthywater

Water-Related Emergencies & Outbreaks

Water-related emergency preparedness and outbreak response has become one of the most significant and crucial issues in recent history. Individuals, families, and businesses have been advised to be prepared for emergencies by creating disaster supply kits that include appropriate amounts of safe drinking water. Emergencies can include natural disasters (for example, hurricanes, floods, and droughts) man-made disasters (for example, intentional contamination), and outbreaks (for example, infections linked to water exposure). Preparedness resources include preparedness toolkits, preparedness training, and directions for emergency water purification and disinfection.

Water-related Emergencies and Outbreaks Topics

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Drinking Water Advisory Resources

Planning, Communications, Implementation, Evaluation...

During water-related emergencies, the quality and safety of water can be compromised. Water-related emergencies can be created by natural disasters such as earthquakes, floods, hurricanes, tornadoes, and landslides. For a complete list of natural disasters and how to prepare and respond to them, please visit CDC’s Natural Disasters and Severe Weather page.

A waterborne outbreak is a cluster of two or more infections caused by the same agent(s) and linked to the same water exposure. Outbreaks can be caused by water contaminated with pathogens, chemicals, or toxins which can be spread through ingestion of.
Drinking Water Advisory Communications Toolbox

Water systems and state or local agencies issue drinking water advisories when they believe water quality is or may be compromised. Advisories tell individuals, schools, hospitals, businesses, and others about the situation and how to take immediate action—to boil tap water before drinking, for example, or to avoid drinking or even using tap water.

What's in the Toolbox?

The Drinking Water Advisory Communication Toolbox provides a practical guide and protocol for communicating with stakeholders and the public about water advisories that is based upon research and identified practices. It focuses on water systems and addresses the spectrum of situations that generate drinking water advisories—from a water main break to a hurricane, a drop in pressure, or intentional contamination.

The toolbox provides information on how to plan for, develop, implement, and evaluate drinking water advisories. It includes instructions on how to prepare before an event, what to do during an event, templates and tools to use, and recommendations for follow-up actions and assessments after an event to enable water systems to communicate effectively with partners and the public in order to protect public health.

How to Use the Toolbox

The toolbox is available in two formats:
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**How to Use the Toolbox**

The toolbox is available in two formats:

- This comprehensive website, with features to make finding, using, and customizing information quick and easy:
  - Book format with [table of contents](#)
  - Web pages optimized for easy printing with appropriate page breaks
  - More than 40 downloadable and customizable [tools and templates](#) in Microsoft Word format, including checklists, fact sheets, and press releases
  - Spanish-language frequently asked questions lists
  - Links to [online resources](#) and a [full bibliography](#)

- A [complete PDF document](#) that includes all content, tools, and templates

Two types of icons appear throughout the text to highlight links to supplemental items:

- **Tools and Templates** in Word format (e.g., worksheets, press templates, FAQs, etc.)
  - **Example:** See [Exercise Planning Template](#) [DOC - 2 pages]

- **Resources** (e.g., websites, regulations and guidance documents, journal articles, etc.)
  - **Example:** See [Appendix B: Online Resources, Exercise Planning and Preparedness](#)
- **Drinking Water Advisory Toolbox**
  - **About**
    - Acknowledgements
  - **Table of Contents**
  - **Overview**
    - Before an Event: Preparing for an Advisory
      - Organizing for Drinking Water Advisories
      - Collaborating with Partners
      - Developing a Message
      - Conducting Exercises
      - Tools and Templates
    - During an Event: Issuing an Advisory
      - Initiating an Advisory
      - Preparing an Advisory
      - Distributing an Advisory
      - Ending an Advisory
      - Tools and Templates
    - After an Event: Evaluating an Advisory
      - Reporting Requirements
      - Debriefing an Event
      - Conducting an Evaluation
      - Modifying SOPs
      - Updating Public Outreach
      - Tools and Templates
  - **Glossary of Terms and Abbreviations**
  - **Online Resources**
  - **Toolbox Bibliography**
  - **List of Tables**
  - **List of Figures**
  - **Tools & Templates**

*Drinking Water Advisory Toolbox* [PDF - 166 pages] - includes all content, tools, and templates from this website
Water-related Emergencies & Outbreaks

Drinking Water Advisory Toolkit

Before an Event: Development

Collaborate with Your Community

Drinking water advisories are issued for an event or situation. Communication can be improved by collaborating with your community. The Information list outlines the questions before a drinking water advisory must address.

Message Development

Tools and templates that can help guide pre-event message development include:

- **Worksheets:**
  - **Single Overriding Communication Objective (SOCO) Worksheet** [Word - 2 pages]
  - **Communicating with Susceptible Populations Worksheet** [Word - 5 pages]
  - **Message Mapping Template** [Word - 1 page]
  - **Sample Message Map** [Word - 1 page]

- **Q&As and fact sheets:**
Single Overriding Communication Objective (SOCO) Worksheet

PURPOSE
Advisories need a clear, consistent message. The SOCO (Single Overriding Communication Objective) Worksheet is a tool to create a specific message. Use the message developed in the SOCO Worksheet for all communication with the public and partners, including briefings and press releases. The point of contact information identifies the communication contact for the advisory. The SOCO approach applies to any water system communication.

DIRECTIONS
Work with water system staff and partners to complete the SOCO Worksheet. Use the best available information. First, think about the reason for the advisory and the actions needed. Next, answer each question. Use the results to develop all communication. As the situation changes, use this worksheet to update the message.

Key Message: Provides Meaning and Context
In one brief paragraph, state the key point or objective you want to communicate.

Key Facts
What are the three most important facts you need an individual to understand about the Drinking Water Advisory?

Target Audience
Who is the main audience or population segment you would like this message to reach? Who is the secondary audience?

Primary Audience:
Secondary Audience:
Tertiary Audience:
Sample Message Map

This is an example of a completed Boil Water Advisory message map.

Contamination suspected/found in tap water. Take action before drinking or cooking.

- Boil water for drinking and cooking.
  - Fill pot with water. Heat until bubbles come from the bottom of the pot to the top.
  - Once the water reaches a rolling boil, let it boil for one minute.
  - Let the water cool and store it in a clean container with a cover.

- Routine tests confirm the presence of E. Coli bacteria in the water.
  - Your risk of illness after drinking this water is increased.
  - The Water Utility is increasing the disinfectant levels and flushing the distribution system to eliminate the problem.
  - Testing will continue until the problem is resolved. You will be informed of progress.

- If you cannot boil water, disinfect it.
  - Add 8 drops (1/8 teaspoon) of unscented household bleach per one (1) gallon of water.
  - Mix well; allow water to stand for 30 minutes. If water is cloudy, filter it. Add 16 drops (1/4 teaspoon) of unscented household bleach; mix well and allow water to stand for 30 minutes.
  - Store disinfected water in a clean container with a cover.
Frequently Asked Questions About Coliforms and Drinking Water

What are coliforms?
Coliforms are a group of bacteria found in plant material, water, and soil. Coliforms are also present in the digestive tract and feces of humans and animals. Most of the time, these bacteria are not harmful.

Why does a water system test for coliforms?
Water systems test for indicators such as total coliforms, fecal coliforms, or E. coli to monitor water quality. If the water system has a positive test for one of these indicators, it can mean recent contamination with soil or human feces.

What does a positive coliform test result mean?
A positive coliform test means possible contamination and a risk of waterborne disease. A positive test for total coliforms always requires more tests for fecal coliforms or E. coli. A confirmed positive test for fecal coliforms or E. coli means you need to take action as advised by your water system.

Will coliform bacteria make me sick?
Most coliform bacteria are a normal part of the environment. They do not cause disease but do indicate the water might be contaminated by soil or feces. Some rare types of coliforms, such as E. coli O157:H7, can cause serious illness. Although most E. coli O157:H7 outbreaks are from eating raw or undercooked food, cases from contaminated drinking water can occur, but are rare.

Why test for indicator organisms?
A biological pathogen is any organism, such as a bacteria, virus, protozoa, or parasite, that causes a disease. Biological pathogens are commonly called "germs." There are many different possible pathogens. It is not possible to test for every type of pathogen in every water sample, so water systems use indicators instead. Water systems test for indicator organisms, like coliforms, to check for possible contamination by biological pathogens. Most coliforms are not harmful, but they come from the same sources as other bacteria and organisms that could make you sick.
**Frequently Asked Questions**

**What are coliforms?**
Coliforms are a group of bacteria found in the digestive tract and feces of warm-blooded animals. They can also be found in soil, water, and food.

**Why does a water system test for coliforms?**
Water systems test for coliforms to ensure the water is of good quality. If the water contains coliforms, it could be contamined with some contamination.

**What does a positive test mean?**
A positive test for total coliforms always indicates the presence of E. coli or other coliforms in the water. Most water systems do not test for E. coli because it is not present in water.

**Will coliform bacteria cause illness?**
Most coliform bacteria in drinking water are not harmful. However, some species can cause serious illnesses such as food poisoning or liver disease due to their ability to spoil food.

**Why test for indicator bacteria?**
A biological pathogen can cause illness. Biological pathogens can cause illness in people who have contact with contaminated water. It is not possible to tell whether water is contaminated with biological pathogens.

**Disinfecting water**
If you are unable to boil your water, disinfect it instead.

**Boiling water**
- Fill a pot with water.
- Heat the water until bubbles come from the bottom of the pot to the top.
- Once the water reaches a rolling boil, let it boil for 1 minute.
- Turn off the heat source and let the water cool.
- Pour the water into a clean container with a cover for storage.

**If tap water is clear:**
- Use unscented (bleach that does not have an added scent).
- Add 1/8 teaspoon (8 drops or about 0.75 milliliters) of unscented household liquid bleach to 1 gallon (3.8 liters) of water.
- Mix well and wait 30 minutes or more before drinking.
- Store disinfected water in clean container with a cover.

**If tap water is cloudy:**
- Filter water using clean cloth.
- Use unscented (bleach that does not have an added scent).
- Add 1/4 teaspoon (16 drops or 1.5 milliliters) of unscented household liquid bleach to 1 gallon (3.8 liters) of water.
- Mix well and wait 30 minutes or more before drinking.
- Store disinfected water in clean container with a cover.

Remember that containers may need to be sanitized before using them to store safe water.

**Sanitize containers:**
- Use unscented (bleach that does not have an added scent).
- Make a sanitizing solution by mixing 1 teaspoon (5 milliliters) of unscented household liquid bleach in 1 quart (32 ounces, 4 cups, or about 1 liter) of water.
- Pour this sanitizing solution into a clean storage container and shake well, making sure that the solution costs the entire inside of the container.
Individual Tools

- Information for Communication Planning
- Point of Contact for Notification of an Advisory
- Communicating with Susceptible Populations Worksheet
- Message Mapping Template
- Sample Message Map
- Single Overriding Communication Objective (SOCO) Worksheet
- Spokesperson Assessment Tool
- Critical Customer Checklist
- Point of Contact Template
- Q&As and Fact Sheets-Advisory Advice
- Quick Reference Facts
- Comprehensive List of Q&As for Boil Water Advisories
- Fact Sheet About What to Do During a Boil Water Advisory
- Fact Sheet About What to Do During a Boil Water Advisory (Spanish)
- Frequently Asked Questions About Coliforms and Drinking Water
- Frequently Asked Questions About Groundwater Rule Advisories
- Frequently Asked Questions About What to Do After a Drinking Water Advisory
- Frequently Asked Questions About What to Do After a Drinking Water Advisory (Spanish)
- Point of Contact for Coordination During an Advisory
- Water System Information Worksheet
- Exercise Planning Template
Drinking Water Advisory Communication Toolbox

Tools and Templates

All-in-One Zip File

Instructions: Save the file to your hard drive, go to the folder where you saved it, and double click the file. It will open a window displaying all the Word documents. If you're using Windows 7, click the button near the top called "Extract All". If you're using Windows XP, click "File > Extract All" in the top menu bar.

Section 1: Before an Advisory - Tools & Templates

Zip File

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Individual Tools

* Information for Communication Planning [Word - 1 page]
* Point of Contact for Notification of an Advisory [Word - 1 page]
* Communicating with Susceptible Populations Worksheet [Word - 5 pages]
Appendix C: Toolbox Bibliography

Section 1: Before an Event - Preparing for an Advisory

- CDC. Infection - General Public: Who might be immunocompromised or have a weakened immune system? 2009.
- CDC. Emergency and risk communication on the web. The Risk Communicator, 3, 4-6. 2010.
- Center for Health Policy, Columbia University. Public Health Emergency Exercise Toolkit. [PDF - 80 pages] @ Columbia School of Nursing. 2007.
- Churchill, R. E. Planning Public Health Communications. Distance Training Session, Data Use Institute and Data Use Academy. @ 2003.
Next Steps

- Develop version 2, incorporating feedback from field
- HTML version
- Evaluate Toolbox in use
- Scalable modules
  - One size does not fit all
  - Small, Medium, Large system module
CRYPTOSPORIDIUM IN OREGON, 2013
Baker County
HEALTH DEPARTMENT

BOIL WATER NOTICE IN EFFECT
City of Baker City, Oregon

DRINKING WATER WARNING: Boil Before Using

Disease-Lasting organisms have entered Baker City’s municipal water supply.

Residents should not drink the water without boiling it first. Bring all water to a boil and then let it cool for use. Boiling water will kill most disease-causing organisms.

Water service was affected by a loss of pressure due to a water main break near the Northwest Water Treatment Plant. The water main break occurred between 4:00 AM and 9:00 AM on Monday, August 10, 2015. Customers have been advised to avoid boiling the water for non-potable uses such as flushing toilets.

City officials have begun addressing the water treatment systems to ensure that the water is safe to drink. The Downtown Baker branch of U.S. Bank will remain open for the duration of the water crisis. The City of Baker City will continue to work with the Oregon Health Authority to ensure that the water is safe for consumption.

For future updates, please visit www.bakercity.com.

As a Courtesy of the City of La Grande:

Potable Water is Available

For NE Corner of Campbell and Grove Street

City of La Grande, Oregon

Downtown Baker Branch of U.S. Bank

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Downtown Baker Branch of U.S. Bank
WATERSHED BOUNDARY
CLOSED TO PUBLIC ENTRY

The area behind this sign is closed to all public entry except by permit, to protect the Baker City Watershed.

Title 16 USC Sec 551
ORS 449,327 and 449,328
Baker City Ordinance No. 2303
NO TRESPASSING
Baker City Water Shed
Help Protect Your Drinking Water
ORS #448.295
Challenges for Using the DWACT

- **Foodservice**
  - Restaurants
  - Distributed food products
- **Healthcare**
- **Communication**
Acknowledgments

- AWWA
- AMWA
- ASDWA
- ASTHO
- EPA
- NEHA
- State & Local Public Health agencies and water authorities
- Public & Private Drinking Water Systems
- Aqua Vitae

- King’s College - London
- M Beach
- J Watson
- M Miller
- C Hough
- K Awsumb
- J Kennon
- J Gargano
- M Gronostaj
Thank you!

- Toolbox feedback or suggestions?
  - healthywater@cdc.gov

The views expressed in this presentation are those of the author and do not necessarily reflect the official position of the Centers for Disease Control and Prevention.