



# WATERBORNE DISEASE OUTBREAKS

1. **Agent:** A variety of agents can cause symptomatic waterborne infection, including bacteria, viruses and parasites.

A waterborne outbreak is a cluster of two or more infections caused by the same agent(s) and linked in time and a common water exposure or consumption.

A waterborne outbreak may involve:

- a. **Recreational water:** Treated water includes swimming pools, spa/whirlpools, hot tubs untreated water which includes freshwater lakes, rivers, beaches and hot springs
- b. Water intended for drinking
- c. Water not intended for drinking or water of unknown intent which includes cooling towers, air conditioning systems, misters, decorative water fountains and reclaimed water

## 2. Identification:

- a. **Symptoms:** Vary by etiologic agent. May involve an acute onset of gastrointestinal, pulmonary, respiratory or febrile illness depending on underlying infectious etiology.
- b. **Differential Diagnosis:** Agents that cause waterborne illnesses outbreaks include but are not limited to *Cryptosporidium*, *Giardia*, *Legionella spp.*, *Norovirus*, *Shigella*, swimmer's itch, vibrios, and viral hepatitis agents (A, E).
- c. **Diagnosis:** Based on the clinical history of patients and laboratory results from patients and/or suspected waterborne sources. Many etiologic agents of disease

can potentially be transmitted by water. For disease-specific information, refer to the individual disease sections.

## REPORTING PROCEDURES

1. Outbreaks are reportable under *California Code of Regulations*, Section 2502. Outbreaks or suspected outbreaks require immediate notification by phone to the Communicable Disease Reporting System: 888-397- 3993.

2. **Report Forms:** Varies based on the route of transmission as determined by investigation:

General or non-healthcare facilities: [OUTBREAK/UNUSUAL DISEASE REPORT \(CDPH 8554\)](#)<sup>1</sup>

Acute healthcare facilities: [OUTBREAK INVESTIGATION GENERAL ACUTE CARE HOSPITAL](#)<sup>2</sup>

Sub-acute care facilities: [CD OUTBREAK INVESTIGATION SUB-ACUTE HEALTHCARE FACILITY](#)<sup>3</sup>

The following form reports waterborne outbreaks to CDPH based on the type of water associated with the outbreak: [NORS-Waterborne Disease Transmission \(CDC 52.12\)](#)<sup>4</sup> See [instructions for completing CDC 5212](#)<sup>5</sup> for guidance.

## 3. Epidemiologic Data for Outbreaks:

- a. Establish a case definition based on the case's symptoms, include laboratory data if appropriate.
- b. Confirm etiology of outbreak using laboratory data from clinically ill individuals.

<sup>1</sup>  
<http://publichealth.lacounty.gov/acd/Diseases/EpiForms/OBUnusualDiseaseReportCDPH8554.pdf>

<sup>2</sup>  
<http://publichealth.lacounty.gov/acd/Diseases/EpiForms/OBacuteHCFacForm.pdf>

<sup>3</sup>  
<http://publichealth.lacounty.gov/acd/Diseases/EpiForms/OBSubAcuteHCFacForm.pdf>

<sup>4</sup>  
<http://publichealth.lacounty.gov/acd/Diseases/EpiForms/OBWaterDisNORSForm.pdf>

<sup>5</sup>  
<http://publichealth.lacounty.gov/acd/Diseases/EpiForms/OBWaterDisNORSInstruc.pdf>



- c. Create line list of ill individuals to include:
  - i. Name of case
  - ii. Date of onset
  - iii. Symptoms
  - iv. Age
  - v. Hospitalization status, name of hospital, date of admission, admission diagnosis
  - vi. Results of laboratory tests
  - vii. Travel history (if relevant)
  - viii. Medical treatment
  - ix. Source/location of water exposure
  - x. Epi-links to other cases (if applicable)
- d. Create an epi-curve, by date of onset for all cases during the outbreak. Include cases meeting case definition and probable cases.
- e. Maintain surveillance for new cases until the baseline rate is down to "normal" or no new cases for one week.
- f. Look for suspected source of contaminated water and all possible water exposures to include: inhalation, aspiration, contaminated produce and oral intake during incubation period.
- g. Conduct an epidemiologic study to detect the course of the outbreak and to determine if the illness originated from a single source or is ongoing.
- h. In collaboration with the Public Health Laboratory, obtain appropriate environmental testing of water and other items exposed in the environment to contaminated water (i.e., shower head, facets filters, exhaust hoods, HVAC systems) from various sources as directed by Environmental Health Program and ACDC.
- i. Follow-up on all water testing investigation results.
- j. For suspected source, note date of specimen consumption and potential for cross contamination.
- k. **Secondary Transmission:** Obtain information regarding illness in the non-water consuming contacts to ill individuals.

## **CONTROL OF CASE, CONTACTS & CARRIERS**

When no specific agent is known or suspected to be involved, investigate within one day of report or within three days if episode is reported late.

Follow-up as required by specific waterborne infectious agent with appropriate isolation, restriction from work and other activities, vaccination or use of post exposure prophylaxis if warranted.

### **1. Chief, Environmental Health:**

- a. Investigates and clarifies the original account of episode in collaboration with ACDC.
- b. Collaborates with ACDC in determining the course of field investigation to be made, including source of water, methods of water handling, preparation, and storage.
- c. Collects relevant water specimens. Determines the relevance of water specimens under the direction of Chief, ACDC.
- d. Maintains written reports of Environmental Health Specialists investigations.
- e. In consultation with ACDC, will have authority to close recreation facility and/or other source facilities for waterborne disease outbreak if appropriate.

### **2. Chief, Acute Communicable Disease Control:**

- a. Is the lead authority and responsible to investigate and control a waterborne illness or known hazardous condition caused by biological agents.
- b. Provides the lead in the investigation and control of large outbreaks, multi-area episodes and episodes occurring outside working hours.
- c. Notifies involved district and Environmental Health program, Community Health Services Director, Area Health Officer, and



Medical Director of pertinent epidemiologic findings.

- d. Has authority to close recreation or health facility if appropriate.

**3. Department of Water and Power or Private Water Company:**

The agency for the source of water should be notified of an outbreak or case cluster investigation. This entity will also advise in water treatment and remediation of water source.

**PREVENTION-EDUCATION**

Implement hygienic measures applicable to diseases transmitted via fecal-oral mouth, or respiratory transmission of infected water as follows:

1. Obtain water from safe sources. Recycled and reclaimed water should only be used as appropriate.
2. Enact proper hand hygiene before meals and after using the restroom.
3. Individuals who have contact with diapered/incontinent children and adults

should ensure they are properly washing their hands.

4. Persons with diarrhea should not go swimming to prevent transmission to others.
5. Avoid drinking untreated water that may be contaminated.
6. Avoid fecal exposure during sexual activity.
7. Ensure proper water treatment of source water.
8. Ensure proper maintenance of recreational water facilities.
9. Areas with water exposures in medical, treatment, and testing facilities should be properly maintained.

**DIAGNOSTIC PROCEDURES**

For disease-specific information, refer to the individual disease sections.

Submit clinical specimens as requested by Chief, ACDC. ACDC will consult with PHL regarding proper collection and handling, storage shipping/transportation of any additional clinical or environmental specimens.