

Part II

- Preparedness for water emergencies
- Health considerations



Water, Sanitation, & Hygiene (WASH)-related Emergencies & Outbreaks

Water, Sanitation, & Hygiene (WASH)-related Emergencies & Outbreaks

Drinking Water +

Sanitation & Wastewater +

Hygiene, Handwashing, & Diapering +

Cleaning & Sanitizing +

Extreme Weather Events +

Planning & Response -

Emergency Planning, Training, & Response -

Planning & Training for a Water, Sanitation, & Hygiene (WASH)-related Emergency

Responding to a Water, Sanitation, & Hygiene (WASH)-related Emergency

One-Stop Shop Resources

[CDC](#) > [Healthy Water Home](#) > [Water, Sanitation, & Hygiene \(WASH\)-related Emergencies & Outbreaks](#) > [Planning & Response](#) > [Emergency Planning, Training, & Response](#)

Planning & Training for a Water, Sanitation, & Hygiene (WASH)-related Emergency



This page contains links to webpages, toolkits, reports, and other relevant information to help public health professionals, water utilities, first responders, health care professionals, and others plan, prepare, and train for WASH-related emergencies.

Planning and Training for a WASH-related Emergency

> **Environmental Health**

> **Water Security**

> **Drinking Water and Communications**

> **Drought**

> **Wastewater**

> **Healthcare**

<https://www.cdc.gov/healthywater/emergency/planning-training-response/planning-training.html>

CDC: Preparing for a Water Sanitation Emergency

- Groups to include
 - Environmental health
 - Water utilities
 - Communications
 - Healthcare and public health
- Options
 - Plans development
 - Education for responsible agencies
 - Table top exercises to test plans, communications, coordination



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Responding to a Water, Sanitation, & Hygiene (WASH)-related Emergency



This page contains links to webpages, fact sheets, posters, toolkits, and other relevant information to help public health professionals, water utilities, first responders, health care professionals, and others respond to WASH-related emergencies.

Responding to a WASH-related Emergency

> **Drinking Water and Drinking Water Advisories**

> **Hauled Water or Bulk Water Delivery**

> **Hygiene, Handwashing, Diapering, and Clean-up**

> **Sanitation and Wastewater**

> **Flood Waters**

> **Worker Safety**

<https://www.cdc.gov/healthywater/emergency/planning-training-response/responding.html>

Aspects of a Response

- Drinking water advisories
- Hauled water or bulk water delivery
- Hygiene, handwashing, diapering
- Wastewater
- Flood waters
- Worker safety
- Shelters or mass care
- Education and communication

CDC Emergency Shelter Assessment Tool

- Facility structure, security, capacity
- Food and Drinking water
- Health/medical services
- Sanitation
- Solid waste
- Childcare
- Sleeping area
- Companion animals

Environmental Health Shelter Assessment Form Instruction Sheet

I. ASSESSING AGENCY DATA

1. Assessing Agency/Organization Name: self-explanatory.
2. Assessor Name/Title: self-explanatory.
3. Assessor Phone contact: self-explanatory.
4. Email or Other Contact: Note email or describe any other means of communication for assessor (e.g., radio, pager).

II. FACILITY TYPE, NAME and DATA

5. Shelter Type: "Community/Recovery": general public. "Special Needs": population with specific medical requirements. "Other": relief workers base camp, etc.
6. ARC Facility: Is the shelter managed by the American Red Cross?
7. If #6 is yes, indicate ARC Facility code.
8. Date Shelter Opened: self-explanatory.
9. Date Assessed: self-explanatory.
10. Time Assessed: self-explanatory.
11. Reason for Assessment. "Preoperational": before opening. "Initial": first assessment after opening. "Routine": assessments occurring on a regular basis (e.g., daily, weekly). "Other": occurrence such as an outbreak or a complaint.

34. Free of injury/occupational hazards: With regard to general safety, some examples include:
 - a. Is the facility free of frayed or exposed electrical wires, carbon monoxide hazards, hazardous materials, etc.?
 - b. Are on-duty staff and members wearing PPE?
35. Free of pest/vector issues: note presence of mosquitoes, fleas, flies, roaches, rodents, etc.
36. Acceptable level of cleanliness: self-explanatory.
37. Electrical grid system operational: self-explanatory.
38. If generator in use: check for appropriate location, capacity, adequate fuel and ventilation.
39. If #38 is yes, indicate whether the generator fuel type is gas, diesel, solar, etc.
40. Indoor temperature (°F): temperature measurement from a random location inside facility (ASCE standard for temperatures in buildings).

IV. FOOD

41. Preparation on site: self-explanatory.
42. Served on site: self-explanatory.
43. Safe food source: source of the food from a licensed contractor or caterer.

62. Hand-washing supplies available: water, soap, and paper towels; if water is unavailable, hand sanitizers (at least 60% alcohol).
63. Toilet supplies available: toilet paper, feminine hygiene supplies, and diapers/pads for children and adults.
64. Acceptable level of cleanliness: self-explanatory.
65. Sewage system type: self-explanatory.

VIII. SOLID WASTE GENERATED

66. Adequate collection receptacles: minimum 1 (30-gal) container for every 10 persons.
67. Appropriate separation between medical/infectious waste and general refuse.
68. Appropriate disposal and labeling in approved containers.
69. Appropriate storage and separation from common areas.
70. Timely removal of waste – collected regularly.
71. Check all types of waste generated at facility (e.g., solid, hazardous, medical).

IX. CHILDCARE AREA

72. Clean diaper-changing facilities: self-explanatory.
73. Hand-washing facilities available: for adults and children with paper towels, soap, and water.

equipment.

50. Clean kitchen area: self-explanatory.

V. DRINKING WATER AND ICE

51. Adequate water supply: drinking water in the range of 1–2 gallons/per person/per day, for all uses 3-5 gallons/per person/per day.

52. Adequate ice supply: ice supply sufficient to maintain cold food temperatures.

53. Safe water from an approved source.

54. Safe ice from an approved source.

VI. HEALTH/MEDICAL

55. Outbreaks, unusual illness/injuries: note any reports of illness/injuries or outbreaks of violence among residents, workers, or visitors.

56. Medical care services available: If yes, list type of care available in comments section.

57. Counseling services available: If yes, list type of mental/social services available in comments.

VII. SANITATION (*Augment with off site and /or portable facilities as needed.)

58. *Adequate laundry services: provided with separate areas for soiled and clean laundry.

59. *Adequate number of operational toilets: minimum 1 per 20 persons or as specified by sex.

60. *Adequate number of operational showers/bathing facilities: 1 per 15 persons.

61. *Adequate number of operational hand-washing stations: 1 per 15 persons.

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Limitations to the CDC materials

- Not specific to Alaska
 - Arctic environment not addressed
- Geared toward acute emergencies
 - May be less useful for slow moving event or gradual loss of service
- Illness topics focus on preventing water-borne infections

Other health issues for water/sanitation emergency

- Mental health concerns
 - Water or personal insecurity
 - Temporary shelters
 - Worsening of other mental or behavioral health problems
- Special needs of at-risk persons
 - Elderly, disabled, children
 - Immune compromised
 - HIV, cancer treatment, medications
 - Health care providers may be able to identify and help prioritize facilities, care, services
 - Immunizations, medications, support services
- Companion animals

New health issues for climate change and water systems

- Northward movement of treeline and animals
 - Increased Giardia risk?
 - Are water systems designed to handle this?
- Harmful algal blooms
 - Toxin production
 - Skin, eye, throat irritation
 - Respiratory illness
 - Possible in freshwater sources
- Other emerging problems?

Lessons from Alabama Deep Freeze

- Preparedness was low
 - Households: Little stored water
 - Utilities: little planning and coordination
- Compliance with boil-water notice was low
 - Distrust, misunderstanding: communication issues
- Illness outbreak was not recognized
 - Clinics, hospitals, public health reporting
 - Consider other ways of detecting increased illness
 - Increased use of anti-diarrhea meds, other supplies

Considerations

- Link efforts
 - At-risk water/sanitation infrastructure survey
 - Community preparedness and response
- Use existing resources
 - Local, tribal, state, federal
 - Planning and training
 - Table top exercises?
 - Written plans

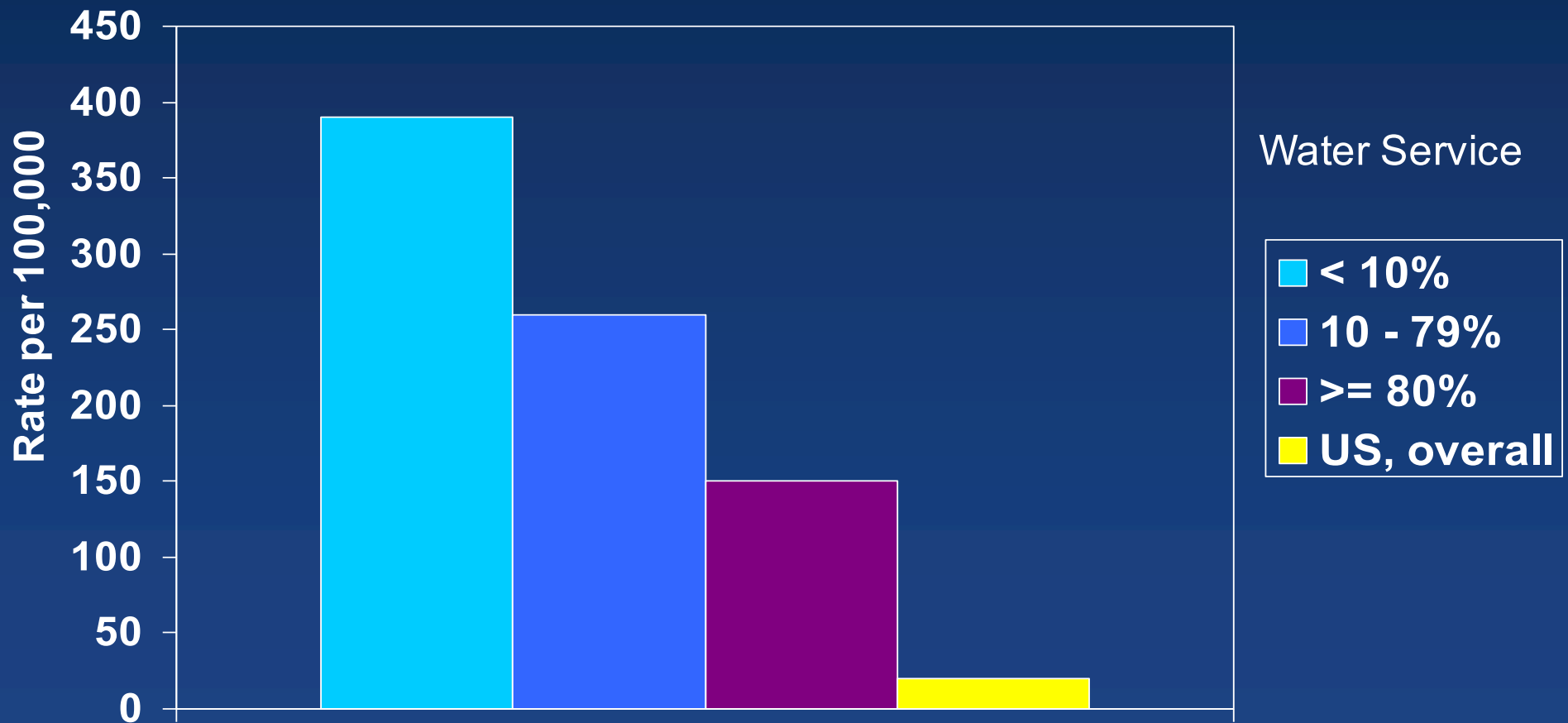
Thank you!

Waterborne Illness Outbreaks in Alaska, Reported to CDC, 2

- **Infectious, community sources (6)**
 - Anchorage, 1971, Shigella, 89 cases
 - Untreated ground water
 - Old Harbor, 1973, Shigella, 50 cases
 - Treatment deficiency
 - Juneau, 1974, Salmonella, 34 cases
 - Treatment deficiency
 - Unnamed Community, 1976, Shigella, 25 cases
 - Untreated surface water
 - Barge Unisea, 1980, Giardia, 189 cases
 - Plumbing system deficiency
 - Ketchikan, 1984, Giardia, 177 cases
 - Treatment deficiency



Serious Infections with Pneumococcus in Children < 5 years old, Southwest Alaska, 2001-2007



* Wenger, 2010, Pediatric Infectious Diseases

Ketchikan 1984

- **Aug through Nov**
 - **Giardiasis**
 - **177 cases**
 - Most from Carlanna Lake area
 - **City water was common source**
 - Carlanna Lake pretreatment water
 - giardia +
 - Construction was ongoing during this time



Hierarchy of Water Requirements

