

# Public Health Flooding Resource

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## 1. Introduction

The **Local Authority is the lead agency**. HSE roles include the provision of welfare and medical support to displaced communities resident at local authority temporary rest centres, and identifying alternative accommodation and specialist transportation for patients who have to be moved. Departments of Public Health provide public health risk assessment, advice and guidance on public health issues relevant to the flood event. See “*Flooding and how to protect your health*” at:

<https://www.hse.ie/eng/services/list/5/publichealth/publichealthdepts/extreme/flood%20risks.html>

## 2. Public Health Risks Associated with Flooding

The public health risks associated with flooding can be divided into immediate and long term risks:

- Immediate:
  - Drowning and injury
  - Displacement of people; need for transport to health care, mortuary facilities, rescue, shelter, safe water, food and health services
  - Carbon monoxide poisoning
  - Disruption or contamination of water supply
  - Contamination of flood waters
  - Infectious diseases
  - Chemical exposure
  
- Long term:
  - Psychological distress
  - Water contamination
  - Food contamination
  - Damage to housing or buildings

## 3. Public Health Risk Assessment

- Identify the population concerned
- Assess the risk to public health
  - Assess the risk of exposure to chemical and microbial contamination including contaminated water, land and indoor environments
  - Identify any major events of chemical contamination
  - Seveso sites with hazardous material under flood should be identified and contacted with Local Authority support, to determine if there is a risk of chemical contamination
  - Surveillance to be undertaken in regions affected by flooding:

- Monitor infectious diseases identify any emerging outbreaks of infectious disease. There is evidence that only locally endemic infectious diseases are of concern.
- Monitor health effects from exposure to non-infectious environmental hazards if indicated
- No additional immunisations required; tetanus booster recommended if it is not up to date

#### 4. Risk Communication

- Communicate risk to key health and other professionals. Advice to public may refer to:
  - Disruption of mains water supply with loss of drinking water and implications for bottle-feeding babies, food preparation, hygiene and sanitation
  - Private water supplies – advise to check if well has been covered by flood water, if colour/taste/smell has changed and if suspicious to adhere to boiled water notice until sample tested
  - Those on private well supply should be referred to EPA webpage “Advice for Private Well Owners Affected by Flooding”  
<http://www.epa.ie/newsandevents/news/2015/name,58775,en.html>
  - Further advice on risk of contaminated drinking water post flood available from <https://www.hse.ie/eng/services/list/5/publichealth/publichealthdepts/extreme/flood%20risks.html>
  - Disruption of power supply with implications for food preparation and hygiene and the risks of carbon monoxide poisoning from the use of generators
  - Cleaning up safely after floods (see Leaflet at: <https://www.hse.ie/eng/services/list/5/publichealth/publichealthdepts/extreme/clean.pdf>)
  - Reducing health risks from exposures to contaminated flood water and residue: prevent or reduce exposure to flood water, residues and other hazards where possible, for example by preventing children playing in floodwaters
  - If exposure cannot be avoided, for example during clean-up, then good hygiene measures are advised such as hand-washing, the wearing of protective clothing, for example rubber boots, an apron and waterproof gloves. A standard face mask and goggles should be worn for scrubbing, hosing or pressure washing. (See leaflet at: <https://www.hse.ie/eng/services/list/5/publichealth/publichealthdepts/extreme/workers.pdf>)
  - Advice to reduce health risks from exposure to hydrocarbons, household and garden chemicals, on food and allotments contaminated by flood water
  - Provide information re the psychological aspects of coping with flooding (See Leaflet at: <https://www.hse.ie/eng/services/list/1/environ/flooding.pdf> )

## 5. Contamination of Water Supply Following Flooding

Following a flood drinking water supplies may become contaminated with

- Microorganisms – ecoli, enterococci, cryptosporidium
- Sewage
- Heating oil
- Agricultural/industrial waste
- Chemical

Other Potential Contaminants

- Petroleum spillage –causing exceedances in polycyclic aromatic hydrocarbons (PAH) or kerosene (a mixture of hydrocarbons). They have the ability to pass through sealed PVC pipe work and therefore the mains distribution is at risk following a fuel spill.
- Deliberate Release – chemical or biological agents
- See Irish Water website for drinking water exceedances  
<https://www.water.ie/water-supply/water-quality/parameters/>

## 6. Summary of Key Flooding Documents

- *Reference: A Framework for Major Emergency Management, Guidance Document 11, A Guide to Flood Emergencies. Available at <http://mem.ie/guidance-documents/>*
- *Reference: HSE Flood Alert Guidance 18/08/2008, Issued by HSE National Office for Emergency Management*
- *A Framework for Major Emergency Management Multi-Agency Protocol Multi-Agency Response to Flood Emergencies 2016. <http://mem.ie/wp-content/uploads/2016/11/Protocol-for-Multi-agency-response-to-Flood-Emergencies-18Nov-16.pdf>*

See individual HSE Severe Weather Plans for detail on service responses required.

**HSE Roles include:**

- CHO Manager will coordinate the response at local level, looks after continuity of services
- Public Health – complete the PHRA and provide public health advice as per MOH legislation
- Environmental Health – monitoring of risk to food premises as per food safety legislation +/- drinking water depending on arrangements with Local Authorities,
- Counselling – regarding coping with impacts of flooding,
- Director of Public Health Nursing – identifies at risk clients,

If any HSE service activates its resources to reports of flooding it should automatically notify the Ambulance Control Centre in their area, and request that the Area Crisis Management Team are alerted, in order that support and guidance be made available.

### **Other Local Area Considerations**

- There are a number of elements in the response which require interaction between HSE and other responding agencies. These should be clarified prior to the event through the Regional Flooding Planning process to avoid confusion in a crisis
  - Identify a contact in Local Authority, with whom you can liaise with at local level
  - Ensure that you are aware of the locations of Local Authority Rest Centres
  - Does the HSE require a presence there, if so who is their contact on site?
  - Ensure that all the information collated in relation to your area, is readily available

## Risk Assessment Checklist for Microbiological Contamination of Drinking Water

(From HSE Drinking Water and Health: A Review and Guide for Population Health HSE 2008)

### Is there a microbiological parametric exceedance?

#### Establish cause and conduct risk assessment

#### Risk Assessment Checklist for microbiological incident

- ✓ Number and type of organisms (microbiological)
  - ✓ Evidence of illness in community
  - ✓ Consumer complaints
  - ✓ Level of immunity in population
  - ✓ Size of population affected
  - ✓ Source of water
  - ✓ Catchment area protection
  - ✓ Distribution
  - ✓ Previous history
  - ✓ Recent changes to water supply system
  - ✓ Extreme weather
  - ✓ Recent incident
  - ✓ Reservoir storage capacity of supply
  - ✓ Operation of plant
  - ✓ Vulnerable groups among consumers
  - ✓ Food premises supplied
  - ✓ Potential for acute toxicity at concentration detected (chemical)
  - ✓ Potential for chronic toxicity at concentration detected (chemical)
  - ✓ Refer also to other parametric-specific algorithms
- <https://www.hse.ie/eng/services/publications/environmentalhealth/hse-drinking-water-and-health-review-and-guide-2008.pdf>

#### Decision based on risk assessment to be recorded

- ✓ Risk – Boil water notice or health advice or restriction on use of supply
- ✓ No Risk – continue to use supply for drinking water

#### Resample to verify on-going effectiveness of controls/remedial actions/status of supply

## **Risk Assessment Checklist for Chemical Contamination of Drinking Water**

(From Public Health Emergency Planning. Guidance for Departments of Public Health Medicine. 2005.

### **Which water supply has been affected?**

- ✓ Description of the supply network, reservoirs, treatment plants etc
- ✓ Is water from different sources mixed in the supply?
- ✓ Any other relevant information regarding facilities with vulnerable population or industry on the supply network e.g. pre-schools/crèches, hospitals, nursing homes, food processing, food premises, home dialysis patients' homes etc.

### **What is the contaminant involved?**

### **How much contaminant is involved?**

### **When did contamination occur?**

- ✓ Description of the contamination
- ✓ How long did the contamination last?
- ✓ How was the incident discovered?
- ✓ Was remediation undertaken?
- ✓ What is the nature of remediation?
- ✓ What testing has been done?
- ✓ What was and is the pH of the water?

### **What population was exposed?**

### **Have the public been notified? If yes how have they been notified?**

### **Have there been public complaints or queries?**

- ✓ Describe complaints - number, nature and location

### **Has there been a response by the Water Services Authority to these complaints?**

- ✓ Do you anticipate further communication with the public?

### **Are there plans to set up an Incident Response Team?**

### **Expertise that the Department of Public Health might offer**

- ✓ Determination of the human health effects of the contamination
- ✓ Risk communication