

BOIL WATER EVENTS

Frequently Asked Questions from Hospitals and Other Resident Medical Facilities

Questions from hospitals, nursing homes, senior homes, prisons and other long term resident care facilities may arise during a boil water event. Below are answers to questions that are commonly asked. Regulated facilities must also continue to make all needed monitoring, reporting and permit requirements unless notified by the relevant program office.

Q1 - Why was a boil water notice issued for my water?

The reason for a boil water notice should be included in the notification issued to inform the public about the boil water event. Your water utility and your local health department office can also answer questions you may have about why a boil water notice was issued for your water supply, and what to do.

A boil water notice is usually issued by water utilities or health agencies as a precaution to protect consumers from drinking water that may have been contaminated with disease causing organisms (also called pathogens). Boil water notices are typically used when an unexpected condition has caused a potential for biological contamination of water in a public water system. Common reasons for a Boil Water Order/Notice include loss of pressure in the distribution system, loss of disinfection, and unexpected water quality problems. These often result from other events such as water line breaks, treatment disruptions, power outages and floods.

Q2 - How long will the need to boil water continue?

Typically a boil water event lasts for 48 hours, but this can be longer and the need to boil water may last for several days or more. Your water utility and/or local health office will advise you when it is safe to return to normal water use. How long will depend on the conditions that caused the need to boil, how quickly the conditions can be corrected, and how long it takes for laboratory results to confirm that your water is again safe to drink.

Your water utility and your local health department office can give you details on how long your boil water notice might last. Public notification will be given when the boil water notice has been lifted.

Q3 - Is there a recommended standard for treating water by boiling?

Bring water to a **FULL ROLLING BOIL for 1 MINUTE**, then allow the water to **COOL BEFORE USE**.

Because water may take 20 or 30 minutes to fully cool, plan ahead. Make up a number of batches of boiled water in advance that is sufficient to meet your demands so you will not need to use it hot and risk scalds or burns.

Q4 - Does the boil water order/notice apply to water used for patients? Staff?

Yes, it absolutely does apply. Boil water orders/notices are usually issued because of the potential for biological contamination. There is potential exposure to your patients, the public, and your staff from direct consumption, dermal contact and accidental ingestion. Exposures can also occur from: medical procedures and equipment that need water for operational and/or sanitizing processes; ingestion of beverages, food, solutions made with water; and from rinse water contact with aggravated gums and open mouth sores.

Q5 - What infectious organisms might be present in contaminated water?

There are many possible water borne pathogens. The organisms of concern in New York State include protozoa such as *Giardia* and *Cryptosporidium*; bacteria such as *Eschericia coli* and species of *Shigella*, *Salmonella*, *Vibrio*, *Camphylobacter*; and viruses such as Hepatitis A, Adenoviruses, Hepatitis E, Enteroviruses (including Polio-, Echo, and Cocksackie viruses), Rotaviruses and Caliciviruses.

These organisms primarily affect the gastrointestinal system, causing diarrhea, abdominal cramps, nausea, and vomiting with or without fever. Sometimes these illnesses are contracted by ingesting contaminated water, and in some circumstances skin contact could also lead to infection. Most of these illnesses are not usually serious or life threatening except in the elderly, the very young or those who are immune compromised.

There is also the potential for opportunistic organisms, such as nontuberculous mycobacteria and *Ralstonia Pickettii*, to be present in the water which may put immunocompromised or other wise sick patients at risk.

Q6 – What measures should be taken?

Necessary measures will be determined by the situation and your facilities. Additional guidance should be present in your contingency and emergency operational plans; which should consider limited or interrupted availability of public water supplies. In general, during a boil water event you must implement measures to eliminate or control exposure to microbiological contaminants in the water supply. This can best be accomplished by evaluating all processes and equipment for use of or interconnections with public water, and then implementing measures to break these pathways or to ensure sufficient treatment prior to exposure to staff, patients, and the public.

The Center for Disease Control and Prevention’s “Guidelines for Environmental Infection Control in Health-Care Facilities”, dated 2003, details many potential processes and equipment pathways for water borne pathogens and opportunistic microorganisms, and recommends the following for recovery and remediation measures for water related emergencies:

I. Contingency plan items

Ensure access to plumbing network so that repairs can be easily made.

Provide sufficient potable water, either from bottled sources or truck delivery.

Post advisory notices against consuming tap water, ice, or beverages made with water.

Rope off or bag drinking fountains to designate these as being “out of service” until further notice.

Rinse raw foods as needed in disinfected water.

Disconnect ice machines whenever possible.

Postpone laundry services until after the water system is restored.

II. Water treatment

Heat water to a rolling boil for >1 minute.

III. Remediation of the water system after the “boil water” advisory is rescinded

Flush fixtures (e.g., faucets and drinking fountains) and equipment for several minutes and restart.

Run water softeners through a regeneration cycle.

Drain, disinfect, and refill water storage tanks, if needed.

Change pretreatment filters and disinfect the dialysis water system.

Q7 - Is it safe to use bottled water?

It is very safe to use bottled water that is certified for sale in New York State. Such water may be used for drinking, cooking, and washing with no further treatment. Bottled water may be preferable when boiling is not possible or is inconvenient. It is always a good idea for facilities to keep an emergency supply of bottled water on hand for just such a use.

Q8 – What is the shelf life/expiration date for bottle water?

Many manufacturers advise a two year period for taste, but bottled water can be used indefinitely if stored properly. The International Bottled Water Association advises consumers to store bottled water at room temperature (or cooler), out of direct sunlight and away from solvents and chemicals such as gasoline, paint thinners and dry cleaning chemicals.

Q9 - Are there any other ways to disinfect my water so that it is safe to drink?

Boiling and bottled water are the most reliable means to ensure safe potable water during a boil water event and should always be your first choices. However, it may be impractical to boil the water needed for some purposes. In extended emergencies, such as an area wide power outage, potable water that needs no further treatment may be supplied by your water utility or local emergency response agency from a tanker truck or a water trailer called a water "buffalo".

CAUTION - Chemical disinfection can also be used, however this may not be as reliable as boiling water for destroying pathogens and medical professionals should only use chemical disinfectants when the conditions support the decision. Chemical disinfection is limited in effectiveness and is not appropriate for very turbid (muddy) water, or where raw sewage or other fecal matter may be present. In this case **only use** an alternate source of water.

Chemical Disinfection - If boiling water is not possible (for example during a power outage) potentially contaminated water may be treated with chlorine. Mix six drops (1/8 teaspoon) of unscented, ordinary household bleach (5.25 percent sodium hypochlorite) per gallon of water. Mix the solution thoroughly and let stand for about thirty minutes before use.

To disinfect using iodine, put eight drops of 2% tincture of iodine in one quart of water. Allow the water to stand at least 30 minutes before it is used.

These disinfection methods can impact the normal taste of your water. Aerating the disinfected water by pouring it back and forth between two clean containers can help to restore normal taste. Chemical disinfection may not be appropriate for vulnerable patients or where raw sewage or cyst (i.e. cryptosporidium) contamination may be present. Chemical disinfection is only marginally effective against Giardia and Cryptosporidium contamination, and may not be effective when high volumes of solids or suspended matter are present (i.e. sewage contamination).

Additional information can be found in several publications, including the State Department of Health pamphlet "Don't Be Left in the Dark", available through your local health department or on the Department's website at: <http://www.health.state.ny.us/environmental/emergency/flood/>

Q10 - What is an acceptable alternate source?

Acceptable alternate sources of drinking water may include:

- Water from another public water supply (one that is not operating under a boil water notice)
- Bottled water that is certified for sale in New York State
- Water from a New York State certified bulk water hauler
- Water provided in a State Emergency Management Office (SEMO) tanker

Roadside springs are **not** a sure source of safe drinking water, since they are seldom monitored and no one is in charge of keeping them safe. If you do use roadside spring water for drinking or food preparation, we recommend that you boil (and then cool) it before use.

Q11 - Does my water treatment system provide enough protection?

It will depend on the contaminant, the treatment provided, and the extent of coverage of the treatment within the facility. More sophisticated treatment, such as chloramination for *legionella* control, may provide sufficient treatment, but would require consultation with your technical staff and the local health department office. Common treatment devices that have limited or no ability to remove pathogens include: carbon filters; water softeners; ion exchange units; sediment filters; chlorine removers; and aerators.

Q12 - Is it safe to use water from a bulk water provider?

Bulk water is not as convenient as bottled water, but can be a much welcomed and safe alternate water source, and in extended emergencies may be provided to you at no charge.

Water that is provided from a State Emergency Management Office (SEMO) tanker or from a New York State certified bulk water hauler will be safe for drinking, cooking, and washing with no further treatment. Depending on the specifics of a boil water event, temporary water stations may be set up by your water utility, local government agency or county emergency response agency. In these cases, the water provided will be from an approved source and there will be oversight of the water delivery operation to assure the water is safe for your use.

If you arrange and receive bulk water on your own, verify that the bulk hauler is certified in New York State. Also ask the hauler to verify that the water being delivered is from a source that has been approved by the Health Department, or from another public water supply that is not operating under a boil water notice. Also ask the hauler to verify that the water was transported in a dedicated water tanker and is safe for consumption. A list of NY State certified bulk water haulers is available online at:

http://www.health.state.ny.us/environmental/water/drinking/bulk_bottle/bulkwter.htm

Q13 - What specific measures should I take to protect my Dialysis patients?

Regulations of the U.S. Department of Health and Human Services, Centralized Medicaid and Medicare System (CMS) require that dialysis units be supplied a very high quality water that meets the standards set by the Association for Advancement of Medical Instrumentation (AAMI).

If your dialysis center is equipped with a supplemental water treatment system that meets the AAMI water quality standards, and is operated in full conformance with the CMS regulations, you should be able to continue treating patients without the need for boiling or other supplemental disinfection. To help ensure that you meet these standards, it is recommended that your supplemental water treatment system be run and maintained by an operator Certified in Biomedical Nephrology Technology (CBNT) by the National Nephrology Certification Organization (NNCO). Additionally, your operator should be aware of the boil water event so that

the operations of your supplemental system can be closely watched and adjusted if needed to maintain AAMI quality water during the boil water event.

Do not continue to provide dialysis treatment if you are unsure whether your system is in full compliance with the AAMI water quality standards and the applicable CMS regulations. If you stop providing dialysis treatment as a result of potential water quality concerns, you must ensure that all your patients receive their needed treatment at an alternative location.

Since few (if any) dialysis facilities provide water that is treated to AAMI standards to their sinks, fountains, hot water tanks, etc., the same precautions appropriate for other medical facilities to control potential exposures to patients, the public, and staff should be taken.

Q14 - What other units may be effected?

This will completely depend on the equipment, infrastructure, procedures, and infection control measures employed by your facility. Some other processes and equipment noted in the CDC Guidelines (2003) with possible water borne microorganism concerns include: bronchoscopy and instrument reprocessing, potable water ingestion prior to sputum specimen collection, endoscope reprocessors and rinse water, decorative fountains, contaminated solutions and disinfectants, distilled water, nebulizers, water baths, ventilator temperature probes, vaporizers, humidifiers, hydrotherapy tanks, aerosols from showers or cleaning, ice and ice machines, ice baths for thermodilution catheters, eye wash stations, mist tents, vacuum suction equipment, deionized water and holy water.

Q15 - What should I do about sinks and fountains?

All fountains and sinks accessible to the public should be shut off until the boil water order/notice is lifted and the water lines feeding them have been flushed. If this is not possible, then signs that legibly state "Do Not Drink" must be posted on all fountains and sinks, and bottled or boiled water must be provided at a convenient location so that no one is tempted to ignore the signs.

Similar measures should be provided to locations where staff can access potentially contaminated public water, even if no patients or public normally visit that location.

Q16 - Is potentially contaminated water safe for washing clothes/linens?

Yes, unless a "Do Not Use" notification has been issued, it is safe to wash clothes and linens in tap water as long as the clothes are completely dried with heat before being used. However, increased turbidity that sometimes occurs during a boil water event may discolor items

Q17 - Can I use hand sanitizing lotion or wipes?

Sanitizing wipes can certainly be used and are encouraged, but these are generally not as effective as proper hand washing with soap and water. Alcohol based sanitizers work against many common disease causing agents (*E. coli*, *salmonella*, and *campylobacter*), but may not be effective for cryptosporidium and some bacterium spores. It is recommended that sanitizing wipes be accompanied by an ample supply of boiled or bottled water for washing with your regular antiseptic soap.

Q18 - My facility also provides food service. How do I operate this during a boil water event?

To continue operating a food service during a boil water event, you must be able to fully protect your customers and staff from exposure to the potentially contaminated water. It is your responsibility to take whatever steps are needed to protect your customers. In addition to boiling water or using alternate water sources, these may include:

- Change the menu to remove items that are difficult to prepare with limited water
- Add menu items that require little or no water for preparation
- Change food sources, switch to pre-washed produce, canned vegetables, and bottled drinks
- Use single-service tableware
- Discontinue use of post-mix beverage equipment
- Make sure all staff, on all shifts, understand and implement all needed protective measures

Please refer to the food safety during a boil water order/notice pamphlet and the handouts for Food Service Establishments for additional details.

Q19 - Can I use my ice?

Bagged or prepackaged ice made from a potable water source that is not under a boil water order/notice may be used. Ice from your ice maker may be used **if** it can be positively confirmed that it was **all** made well in advance of the boil water order/notice. Any ice made since the boil water order/notice was issued, any ice whose age is uncertain, and any ice mixed with ice whose age is uncertain, must not be consumed or used in food preparation.

It is best to label ice as safe or unsafe and discard unsafe ice to prevent accidental use, unless it has a critical use (i.e. cooling raw food in a power outage). Unsafe ice should not be placed into direct contact with any food items (such as in seafood display coolers).

Q20 - What about the ice machine?

The ice machine should be disconnected from the water line, drained and should not be reconnected until the lines and machine are properly flushed and disinfected (per the manufacturer's directions) after the order/notice has been lifted.

Q21 - Is potentially contaminated water safe for bathing and shaving?

Unless a "Do Not Use" notification has been issued, your water may be used by healthy individuals for showering, bathing, and washing, so long as care is taken not to swallow the water.

Children and disabled individuals should have their bathing supervised to ensure water is not ingested. Sponge bathing may be advisable, to further reduce the potential for ingestion. The time spent bathing should be minimized.

Though the risk of illness is small, individuals with open wounds, blisters/sores, recent surgical wounds, are immunocompromised, or are suffering from chronic illness may want to consider using boiled water (then cooled) or water from an acceptable alternate source for bathing, skin cleansing and shaving until the boil water order/notice is lifted.

Q22- Does a boil water order/notice affect how I can use my toilets?

There is no need to disinfect water used for flushing. Unless a "Do Not Use" notice was issued, or a water conservation notice was issued along with the boil water notice, there is no restriction or concern about using your toilet.

Q23 - What if I have already consumed potentially contaminated water?

If someone has consumed potentially contaminated water from a public water system, or even from their own private well, the likelihood of becoming ill is low. However, illness is certainly possible, especially for people that have a chronic illness or may be immunocompromised. This is why boil water notices are issued.

Anyone experiencing symptoms of gastroenteritis, such as diarrhea, nausea, vomiting, abdominal cramps, with or without fever, should seek medical attention. These symptoms are not unique to exposure to potential contaminants/organisms in the water, and a doctor's involvement is key to identifying the cause of your illness. If your doctor suspects a waterborne illness, you may be asked to provide blood and/or stool samples.

Q24 - When can my facility return to normal use of the public water?

Your water utility and/or local health office can advise you when the public water supply is again safe for normal use. However, because medical facilities serve people that are already ill or immunocompromised, and may have unique equipment or plumbing, there are precautions that must be taken before your office can return to normal use of the public water supply.

Q25 - How do I make my facility ready to again rely on public water?

Your internal plumbing needs to be flushed of all water that may have entered the facility during the time that the boil water order/notice was in effect. Individual facility managers should develop a flushing procedure that is sufficient to completely clear all plumbing lines and fixtures of questionable water. All questionable water should be flushed to waste. Flushing procedures should provide for at least one full tank volume of water to be flushed through hot water tanks

Some of your medical equipment may also need flushing or specific disinfection procedures may need to be implemented before the equipment can be used for patients. If you do not have flushing or disinfection procedures already available for your equipment, check with your equipment supplier for advice.

If your facility has an ice machine, remove and dispose of all ice that may have been made during the time that the boil water order/notice was in effect. The ice machine should be disconnected from the water line, drained and should not be reconnected until the lines and machine are properly flushed and disinfected (per the manufacturer's directions) after the order/notice has been lifted. Disinfection should include the ice bin itself and any scoops or ice containers associated with the machine.

Additional equipment and processes may also be effected by a complete loss of public water or a Do Not Use order; including but not limited to equipment that uses potable water for coolant or make up water such as X Ray machines, backup generators, and heating and ventilation equipment.