



Hot Tub Displays and the Risk of *Legionella* *Information Operators Should Know*

Hot tub displays are popular at temporary events such as fairs, conventions, and home & garden shows. If not adequately maintained, hot tub displays could possibly make you, your employees or the public ill with a severe lung infection. This illness is a type of pneumonia called **Legionnaires' Disease**. Legionnaires' disease is caused by inhaling small droplets of water in the air that contain a type of bacteria called *Legionella*.

Why Hot Tubs?

Hot tubs, in general, are a favorable environment for the growth of *Legionella* because the bacteria grow best in warm water temperatures, especially between 77°F and 108°F. There is a greater chance for a hot tub to become contaminated with *Legionella* if improper levels of disinfectant are used, and/or the hot tub is not adequately maintained. Additionally, hot tubs typically have jet features which create aerosols in the form of mist or vapor from the hot tub water. Because of the aerosols, individuals don't even have to be inside of a contaminated hot tub to become ill. Even being *near* a contaminated hot tub could cause serious illness.

How to Prevent *Legionella* from Contaminating your Hot Tub Display

1. **Use disinfectant in the water**, even if the hot tub is for display only. Adding a disinfectant such as chlorine or bromine will minimize the risk of *Legionella* growth.
2. **Regularly monitor the disinfectant levels**. Warm temperatures make it difficult to keep disinfectants at the levels needed to kill *Legionella* and other harmful bacteria. The Centers for Disease Control and Prevention (CDC) recommend operators test their hot tubs twice per day, ensuring the water is within the following ranges:
 - a. Free chlorine: 2–4 parts per million (ppm) OR Bromine: 4–6 ppm
 - b. pH: 7.2–7.8
3. **Maintain accurate records** of disinfectant and pH measurements along with maintenance activities. Write everything down on a log sheet.
4. **Ensure trained staff is available at the display during operational hours**. Hot tub vendors should know about the risk that hot tubs may pose when they're not adequately maintained.
5. **Regularly clean the hot tub and hot tub components**. Hot tub displays should be cleaned at the end of each event. Hot tubs and components should be cleaned according to the manufacturer recommendations. The CDC recommends the following cleaning guidelines:

- a. Clean the hot tub
- b. Apply a biocidal shock treatment
- c. Drain it, removing as much water from the system as possible
- d. Remove filters and leave to dry
- e. Clean filters before reuse
- f. Replace filters when recommended by the manufacturer
- g. Protect the hot tub from external water sources (rain, humidity, condensation drip, moisture)
- h. Keep the hot tub as dry as possible between events

Know About Legionnaires' Disease

Symptoms:

Symptoms usually begin 2-14 days after being exposed to the bacteria. Most cases can be successfully treated with antibiotics. Symptoms include:

- Coughing
- Shortness of breath
- Fever
- Muscle Ache
- Headache

People at Increased Risk:

- Individuals who are 50 years or older
- Current or former smokers
- People with chronic lung disease
- People with weakened immune systems or who are taking medicine that weakens the immune system

Other Facts:

- The Legionella bacteria can also cause a less severe illness called **Pontiac fever**. Symptoms of Pontiac fever (primary fever and muscle ache) begin within a few hours to 3 days after being exposed to the bacteria and usually last less than a week.
- Cases of Legionnaires' disease are growing rapidly in the United States. Since 2000, reported cases of Legionnaires' disease have grown by nearly nine times.
- Legionnaires Disease does NOT spread person-to-person.
- *Legionella* is naturally occurring in the environment and can be found in fresh water such as streams and lakes. However, illness rarely occurs from these sources.
- *Legionella* can also be found in cooling towers, plumbing systems, and decorative fountains.

Should you have any questions about *Legionella* or Legionnaires' Disease, please contact Summit County Public Health at (330) 926-5600.