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Hotter water may prevent Legionnaires' disease

Turned-down water heaters may increase risk

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Chicago - Check your water heater. If it's set too low, you could be at risk of getting Legionnaires' disease.

Although cruise ship, hotel and hospital outbreaks get all the attention, home is where you may be more likely to breathe in the bacteria that cause Legionnaires', new research suggests. Turning down your water heater to save energy or to prevent scalding may let the germ flourish.

"There's a misconception this is an exotic organism that causes outbreaks and that people don't need to worry about it in drinking water," said Janet Stout, a Pittsburgh researcher who has done several studies linking cases of the disease to home plumbing.

She presented one such study, funded by the Environmental Protection Agency, Sunday at the American Society for Microbiology's annual meeting on infectious diseases.

Legionnaires' disease is caused by inhaling *Legionella* bacteria, and is named for the American Legion convention in Philadelphia where it caused an outbreak in 1976 and was first recognized.

Between 8,000 and 18,000 Americans get it each year, the U.S. Centers for Disease Control and Prevention estimates. But it's under-recognized and underreported. Many people with it get only mild symptoms, but it causes up to 5% of pneumonia cases that require hospitalization each year and is often fatal.

The home connection

Outbreaks have been blamed on cooling towers, large air conditioning systems, whirlpool spas, fountains and even grocery store produce misters, but these account for only about 20% of cases.

"It's always been a bit of a mystery what causes that remaining 80 percent," said Daniel Feikin, a respiratory diseases expert at CDC. "It's reasonable to think that at least some of these sporadic Legionnaires' cases are contracted at home."

Stout, director of the special pathogens lab at the VA Medical Center in Pittsburgh, previously published research linking cases to home plumbing.

"Some of those were apartment buildings and not individual dwellings," so researchers wanted to look at risks in the average home, she said.

In this study, they started with 35 cases in Ohio and Pennsylvania and were able to get inside the homes of 21. In five, the strains of bacteria in the plumbing and the patients were an exact match, strongly suggesting they were the source of infection. Testing of water faucets for the bacteria was positive in a whopping 92% of cases.

"A very high proportion of the outlets were positive for *Legionella*," Stout said. "When we found it, we found a lot of it."

Bill Risen, a 42-year-old Franklin man hospitalized at St. Luke's Medical Center in early August for Legionnaires' disease, wonders whether he many have gotten the germ at home.

"It was very nasty," he said, adding that health officials investigating his case told him there were four others about the same time but that only one other person had been anywhere he had been in the 10 days before he got sick.

About 45 cases of Legionnaires' disease are reported in Wisconsin each year, said Tom Haupt, an epidemiologist in the Wisconsin Division of Public Health.

Turning up the heat

The elderly, smokers, people with weakened immune systems and those with other conditions such as asthma are at a higher risk and may want to consider raising the temperature on their water heaters to prevent the disease.

Warm, stagnant water and "rust (iron), scale, and other microorganisms can also promote the growth of *Legionella*" - conditions often found in home water heaters, says the Web site of the federal Occupational Safety and Health Administration.

The water heating industry has long been warning that bacteria can become aerosolized by shower heads, humidifiers or sink faucets, setting conditions where people can breathe it in.

"L bacteria have an optimal growing temperature that is between 77 and 108 degrees Fahrenheit, so all the recommendations for Legionnaires' disease say you should keep your water heater above 120 degrees, where *Legionella* can't multiply," Feikin said.

But many health groups have campaigned in recent years for people to lower the temperature to 110 to prevent scalding burns to children and frail elderly people, who may have limited sensation and can't perceive the risk of burn from hot water.

Laws in Wisconsin and many other states limit water heater temperatures to 110 in nursing homes and other care facilities for that reason.

At home, if people want to turn up the temperature to 120 to prevent Legionnaires' disease, health officials suggest testing bath water with a thermometer before letting a frail older person or child get in the tub, and being careful to avoid scalding by hot water from the tap.

An alternative is to periodically flush the system - raise the temperature to 160 and flush taps for 5 to 10 minutes, letting all the faucets run "so you get out all the contaminants at one time," Haupt said. "But I can't stress enough that this is temporary.

"We're not telling people that they have to put these temperatures up in their water heaters. There could be risks of burns. We certainly are not recommending that people get their home water tested, because there are no known limits of what (bacterial levels) will get people sick. You could find it in just about everybody's hot water system - yours, mine, everybody's.

"You're never going to be able to sterilize your water supply."

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