Analysis: Chlorine to curb Legionnaires' eating away at pipes at VA sites

Chlorine treatments meant to stop dangerous bacteria that can lead to Legionnaires' disease are eating away metal pipes across the Veterans Affairs Pittsburgh Healthcare's plumbing system, threatening long-term damage that could cost millions to correct, an independent evaluation shows.

By Adam Smeltz
Tuesday, May 5, 2015, 11:42 p.m.
Updated 5 hours ago

Premature corrosion at VA campuses in Oakland and O'Hara eventually could force exorbitant bills for plumbing repairs and slash the pipes' lifespan by years, according to disinfection and engineering experts briefed on the matter. A 57-page analysis obtained by the Tribune-Review blames high chlorination for pitted pipes and outright failures found in the water distribution system, where workers report occasional dark discharge from faucets.

"This is a hospital, and we are afraid to drink the water," said Colleen Evans, a registered nurse and executive vice president for the American Federation of Government Employees Local 2028. The union...
represents about 2,500 VA Pittsburgh workers.

VA officials said chlorination, adopted in 2013, has proven effective in containing Legionella bacteria that led to the deaths of at least six VA Pittsburgh patients and sickened at least 16 others in 2011 and 2012.

“Our real goal is patient safety. A trade-off of a little more maintenance and repair is worth it if we’re saving lives,” said Dr. Brooke Decker, infection prevention director for the VA Pittsburgh, who acknowledged some darkened tap water might be related to the chlorine treatments.

The analysis released last May by Cyrus Rice Water Consultants in Coraopolis showed chlorine levels up to five parts per million, or 20 percent higher than limits for drinking water set by the federal Environmental Protection Agency.

VA officials said the levels have since eased up, complying with drinking water standards and maintaining chlorine low enough that it poses no health risks.

Decker said the last Legionnaires’ case linked to the VA Pittsburgh was in 2012, before the health system replaced its less corrosive copper-silver ionization technology with chlorination to stave off the waterborne bacteria.

Workers block off affected spigots and pass out bottled water if chlorine levels exceed standard ranges, Decker said.

The VA did not specify the cost of chlorine-related plumbing damage but reported spending $11.7 million in 2013 on anti-Legionella upgrades, including chlorination equipment in Oakland and O’Hara. Water filters, chemicals, routine testing and related Legionella-prevention expenses — excluding pipe repairs — totaled about $632,000 in 2014, according to the VA.

The agency did not quantify the volume of chlorine-related plumbing problems, although a facilities manager said the issues are concentrated around 19 injection points for the chlorine.

The corrosion “won’t manifest itself with catastrophic failure. What will happen is small, pinhole leaks,” said Gary Lang, an assistant chief of facilities management for the VA Pittsburgh.

He said the facilities staff expects to see “bits and pieces over time that we would have to keep replacing.”

“We’re always trying to get a compromise between Legionella control and minimization of corrosion to our piping,” Lang said. The corrosion falls in line with the VA’s expectations when it switched to chlorination, he said.

The VA fired the former director of the Pittsburgh Healthcare System, Terry Gerigk Wolf, over her handling of the Legionnaires’ outbreak.

Earlier internal reviews found the system’s copper-silver technology failed because workers did not maintain it well. VA Pittsburgh used the approach successfully for years before maintenance practices deteriorated.

Most hospitals in the Pittsburgh area retain copper-silver systems in part because they are less corrosive than chlorination, known as early as the 1980s to damage hospital pipes, infection control scholars said.

“It’s very clear in multiple publications that these negative consequences are associated with ongoing use of chlorine,” said Janet Stout, a former VA Pittsburgh worker, a microbiologist and president of the Special Pathogens Lab, Uptown.

At Virginia Tech University in Blacksburg, civil engineering professor Marc Edwards said he wouldn’t necessarily advise against chlorination.

“The risks of Legionnaires’ disease are so high that it might be worthwhile to allow some extra damage to the plumbing system in order to protect human lives,” Edwards said.

Though it’s “really impossible to predict” how fast chlorination might wreck a plumbing system, Edwards said complete replumbing in some circumstances can top $10 million per building.

Other proven methods to contain Legionella, a naturally occurring bacteria, include monochloramine chemical treatments. UPMC is exploring those as a disinfection supplement to copper-silver ionization, said UPMC Chief Quality Officer Tami Minnner.

Decker said VA Pittsburgh has no immediate plans to change its disinfection approach.

“If we find something that really is better and has less limitations, we will move to it,” Decker said. “We’re not locked” to chlorination.

Adam Smeltz is a staff writer for Trib Total Media. He can be reached at 412-380-5676 or asmeltz@tribweb.com.

Copyright © 2015 — Trib Total Media