Legionella bacteria found in Flint hospital’s water

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Water testing during an outbreak of Legionnaires’ disease in Genesee County found Legionella bacteria was present in water at McLaren Regional Medical Center — and an expert hired by the hospital said this week the organism likely came from Flint River water delivered by the city water system.

In an email to The Detroit News, McLaren spokeswoman Laurie Prochazka confirmed the facility undertook “aggressive testing” of its water after noting an increase in Legionnaires’ there and at other hospitals in the spring of 2014. “Early test results indicated the presence of a low level of Legionella,” she said.

The medical center took action, and “All Legionella testing continues to show the McLaren Flint water supply is well within safety and quality standards,” Prochazka added.

Janet Stout, a research associate professor at University of Pittsburgh’s Swanson School of Engineering and an expert on Legionnaires’ disease, said this week the germ likely entered the hospital via brown water, which was delivered by the Flint water system, laden with organic matter on which Legionella and other bacteria feast. McLaren hired Stout early on in the outbreak to assess the possible presence of the bacteria and recommend remediation, if necessary.

State epidemiological reports found more cases “associated” with McLaren than with any other source of exposure, but have not made a connection with Flint River water. The clash highlights the controversy over the state’s insistence the city’s contaminated water isn’t the definitive source of the outbreak.

Asked Thursday if Flint River water caused the outbreak, Michigan Department of Health and Human Services spokeswoman Jennifer Smith said a “strain match” is needed “to make a definitive statement on environmental causation.” Officials have said it’s impossible to identify the strain because Legionella samples were never kept from the patients who had Legionnaires’.

According to Stout, studies have estimated Legionella would be found in about 50 percent of hospitals if water testing were required by the federal Centers for Disease Control and Prevention.

Legionnaires’ disease is caused in warmer months by a certain bacteria in warm fresh water that leads to pneumonia and sometimes death. The bacteria can be found in large plumbing systems, hot tubs, air-conditioning units and fountains.
Eisner referred questions about how the bacteria got into McLaren’s water system to water experts at the Michigan Department of Environmental Quality.

A state analysis released last week noted 16 of 45 people who came down with Legionnaires’ between June 2014 and March 2015 had been patients at McLaren, identified in that report as Hospital A, in the two weeks before Legionnaires’ symptoms started.

A report released Thursday on 42 cases from May through November 2015 said 22 were hospitalized at “Hospital A” within two weeks of Legionnaires’ onset. One was an inpatient at Hospital A and another facility. Eisner would not name the hospitals, saying the facilities were identified by error in the earlier report. McLaren did not respond to requests for comment late Thursday.

Gov. Rick Snyder and other administration officials said last week when they disclosed the outbreak that it is unclear if there is a connection between the respiratory disease and the water the city has drawn from the Flint River since April 2014. State officials have said the Legionnaires’ outbreak has ended.

Snyder and state health officials said 87 Flint-area residents were infected by Legionella bacteria from June 2014 through November 2015. Reports released Thursday reduced the number of deaths to nine from 10 previously reported. Genesee County has fewer than a dozen cases in a typical year.

Officials released a state epidemiological study of the first 45 cases, which occurred from May 2014 through March 2015, that concluded McLaren was more strongly “associated” with the outbreak than any other possible source — including Flint River water. About 47 percent of the cases involved patients whose primary water came from the city.

“In this case, the Legionella outbreak that was reported from June 2014 to March 2015 was found to have an association with a health care facility, and that facility did undertake remediation,” state health department spokeswoman Jennifer Eisner told The Detroit News, identifying McLaren Regional Medical Center as the facility.

Genesee County Environmental Health Division Director Jim Henry said the county worked with McLaren — which uses Flint city water — to resolve a “brown water” issue that occurred after the city switched from Detroit water to Flint River water in April 2014. At least one water main rupture occurred near the hospital, he added.

Prochazka told The News the hospital noted an increase in Legionella cases at McLaren and other local hospitals shortly after the city switched to Flint River water. Aggressive water testing indicated the the presence of a “low level” of Legionella bacteria, she said.

“Once this was identified, we put immediate measures in place that were successful in controlling the situation,” she said. “We have taken additional measures to safeguard the quality of our water system even more by installing a secondary water disinfectant system throughout the entire facility at a cost of nearly $300,000.
“We have also installed lead filters on water and ice machines and continue to aggressively test and monitor our water system. All Legionella testing continues to show that the McLaren Flint water supply is well within safety and quality standards.”

Stout, from the University of Pittsburgh, said an exact molecular match is ideal for determining where the bacteria came from. In the absence of scientific proof, studies have found links between poor quality water from community water systems and increased cases of legionnaires’ disease in New Jersey and Baltimore.

“You have to look at what’s probable,” said Stout. “(When) you have these brown water events and you have water main breaks ... the result of that is you have more nutrients in the water.

“The other benefit is that the materials neutralize the chlorine in the water so it’s not available for killing this bacteria,” Stout said.

“Those are the two fundamentals of microbiology that lead me to conclude that the water quality issues, from a microbiological point of view, certainly were a factor in the increase in Legionnaires’ disease in Genesee County.”

Marc Edwards, a Virginia Tech researcher whose water testing helped uncover the lead contamination problem, suggested a link between the increase in Legionnaires’ cases and a critical misstep in the MDEQ’s handling of Flint’s water treatment — the state’s failure to require corrosion controls to prevent lead from leaching into the water.

Edwards and his research team won a National Science Foundation grant in September for a study on the effects of interruptions in corrosion control.

In a posting last week on his website, Edwards wrote: “A key hypothesis of our (grant) is that the rapid corrosion of iron in water mains in Flint would dramatically increase growth of Legionella in buildings.”

Eden Wells, Michigan’s chief medical executive, said people who are exposed don’t always contract Legionnaires’ disease.

“Those who are elderly or have underlying immune system problems are more susceptible to getting it,” Wells said.

According to Stout, it’s fairly uncommon for people to get Legionnaires’ disease from water at their homes. Large, complex water system in big buildings are more likely to harbor the bacteria.

“About 50 percent of large systems will have some Legionella,” Stout said, adding hospitals rarely test for the bacteria. The federal Centers for Disease Control and Prevention recommends hospitals test their water if they experience two cases of Legionnaires within a six-month period.
“They are probably the only hospital to have taken such aggressive actions, so the water at the hospital is probably safer than anywhere else,” Stout said of McLaren.

To search for the source of exposure, state epidemiologists sent questionnaires to the 45 people who came down with Legionnaires or their relatives. They were asked about the water source at their residences, and places they visited during the two weeks leading up to onset of their legionnaires’ symptoms, such as stores, churches and hospitals.

Among 29 questionnaires returned, more than half the people had visited a health care facility in the previous two weeks, including 19 who were hospitalized for various health issues. Of those, 16 were inpatients at McLaren, two at Hurley Medical Center, and one was admitted to McLaren and Hurley.

Jim Henry, the county environmental health director, said it’s been difficult to get information needed to track the origin of the disease. He has submitted a Michigan Freedom of Information Act request to the city of Flint for the location of water main ruptures that result in brown water and is still waiting for a response.

Snyder was first briefed on the Legionnaires’ outbreak early last week, said outgoing Chief of Staff Dennis Muchmore. In a Monday Detroit News interview, Snyder said he is reviewing the timing of the disclosure.

“There are a lot of issues we’re going through with this whole Flint situation, in terms of the water crisis itself, where I didn’t get information as accurately or timely as I should have,” the governor told The News. “We’re looking at all those situations.”

Snyder said the state has been working with officials from the U.S. Centers for Disease Control and Prevention, as well as the U.S. Environmental Protection Agency since first sharing its findings in June 2015.

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Staff Writer Jonathan Oosting contributed.

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