

October 7, 2016

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Executive Summary: Investigation of a Recent Healthcare-Associated Case of Legionnaires' Disease Genesee County, Michigan

Introduction

On August 10, 2016, a confirmed case of Legionnaires' disease was reported to the Genesee County Health Department (GCHD). The patient had been hospitalized on July 28 (at Facility A) and remained hospitalized before being moved to a rehab facility (Facility B) on August 5. The patient began showing symptoms of Legionnaires' disease on August 8. Symptoms of this illness usually begin 2 to 10 days after someone is exposed to the bacteria that cause it (*Legionella*). Staff from GCHD and the Centers for Disease Control and Prevention (CDC) conducted an investigation to try to figure out how the patient was exposed to *Legionella* at one of the healthcare facilities and see what kind of steps were being taken to prevent *Legionella* growth and spread in both facilities' water systems. During 2014 and 2015, more than 50 people who got Legionnaires' disease had exposure to Facility A before their symptoms began. No cases of Legionnaires' disease have ever been reported among Facility B patients.

Investigation

A team of GCHD and CDC staff visited both facilities between August 23 and 26. The team reviewed patient records collected by GCHD staff and discussed the patient's illnesses and medical care with infection control and risk management staff, as well as gathered information on what type of exposures the patient had to water and where those occurred. The team also met with the building managers and engineers to go over their facilities' water management plans, if available. An environmental assessment was done that included taking water samples from various locations from both facilities, including the rooms where the patient stayed. Water was tested for *Legionella* and for disinfectant and temperature levels, which, if in a good range, can help prevent *Legionella* growth.

Results

Facility A:

- This facility had a comprehensive water management plan, but some parts of the plan were not being followed, including that they were not checking disinfectant levels at points of use.
- Staff are developing a process to make disinfectant level checks automatic through a computerized system. As part of the Facility A water management plan, devices had been installed to add monochloramine, a disinfectant shown to reduce *Legionella* growth, to their water systems.
- Results of the environmental assessment found adequate disinfectant levels in 31 of 32 sites tested, but temperatures in 15 of 19 locations were not in the range that would help prevent *Legionella* growth.
- One of 20 water samples grew *Legionella*. All samples from rooms where the patient received treatment while at Facility A were negative for *Legionella*.
- A majority of the patient's time during the 2 to 10 day incubation period, during which the exposure to *Legionella* likely occurred, was spent at Facility A.
- This investigation did not identify a specific location within Facility A where the patient may have been exposed to water containing *Legionella*.

Facility B:

- This facility did not have a written water management plan.
- One of two hot water systems was not in the temperature range that would help prevent *Legionella* growth.
- Results from the environmental assessment found that chlorine (the disinfectant in municipal drinking water which controls growth of *Legionella* and other organisms) levels were adequate throughout the water system. None of the water samples grew *Legionella*, including samples taken from rooms where the patient received treatment while at Facility B.
- While staying in Facility B, the patient's exposures to water were minimal.

Joint recommendations from GCHD and CDC were made for both facility managers to strengthen parts of their water management plans and improve their implementation. A toolkit for building managers and owners is available from CDC at <http://www.cdc.gov/legionella/wmptoolkit>. Recommendations were also made to continue and expand monitoring of all patients for Legionnaires' disease. GCHD has stated they will continue to track Legionnaires' disease in Genesee County, and, in collaboration with CDC, investigate cases with links to healthcare settings or other buildings where susceptible people may be exposed to *Legionella*.

More resources about Legionnaires' disease for the public and clinicians are available at <http://gchd.us/legionnaires-disease/> and <http://www.cdc.gov/legionella/index.html>.