Minicuci, Angela (DHHS)

From: Cooley, Laura A. (CDC/OID/NCIRD) <whz3@cdc.gov>
Sent: Tuesday, November 22, 2016 9:57 AM
To: Cupal, Suzanne
Subject: follow up from call yesterday
Attachments: McLaren Report_rev_20161103.pdf; CDCresponse_20161103.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Hello Suzanne! Thanks for including us on your call with McLaren staff yesterday. We had a few thoughts following the call that we'd like to share with you. Please let us know if you'd like to discuss them in further detail… or if we can be of assistance in any way.

- We still have some concerns with the comprehensiveness of their water management program implementation. We could have misunderstood, but it sounded like they are still relying primarily on environmental culture and monochloramine residuals at return points to monitor their system. The consistent performance of real time monitoring of water parameters, including monocloramine residuals, at representative distal points of use (i.e., in patient rooms) is essential to fully understanding the health of the water system; variations in these parameters can be an indicator of changes or problems in the system that could potentially lead to growth and transmission of *Legionella*. Checking water parameters only at return points can be problematic because they represents an average, and thus potentially harmful deviations at individual points of use could be obscured. We addressed this in our report and our response to McLaren on November 3 (attached).
    - Report, page 7: Strengthen implementation of the current water management plan: Reinstate regular disinfectant and temperature control checks as indicated in the water management plan, including points of use. Frequent monitoring of water system disinfectant levels and temperature as part of the environmental surveillance system can serve as an alert to changing water conditions. Therefore, if a monochloramine system fails or there are changes in water chemistry due to factors such as low flow, the water management team will be able to quickly implement corrective actions and/or contingency response plans.
    - Report, page 9: On page 7 of this report, it is stated that disinfectant levels had not been routinely checked at McLaren Flint. Upon further discussion, McLaren Flint staff clarified that monochloramine levels were being checked at least weekly in multiple machine rooms, Sub C, and the boiler room, but not at points of use. The same recommendation applies to reinstate regular disinfectant and temperature control checks as indicated in the water management plan, *including points of use*.
    - Response, page 1: Points of use in the cold water system should be included among designated control points to ensure that residual disinfectant is consistently circulating throughout the system. Verifying the level of residual disinfectant at points of use, distal to the water entry point, provides information about the demand for oxidizing biocide throughout the system. A significant change in available residual disinfectant at the point of use could identify areas of the system with increased water age or elevated organic load, both of which factors are associated with an increased risk of *Legionella* growth and transmission. At the time of review, McLaren Flint staff were checking residual disinfectant levels in the return water, distal to points of use, where water is blended, making it impossible to discern which points of use have adequate disinfectant levels.
- It sounded today on the call that additional testing of water parameters and sampling for *Legionella* (as part of the contingency plan) is limited to the rooms where the patient had direct exposure. We recommend that additional efforts be undertaken to fully assess areas for potential growth and transmission of *Legionella*.
    - As addressed on page 7 of the Report:

        - The contingency response plan should describe a procedure to rapidly evaluate water quality parameters at the known **and nearby locations** where a case patient may have been exposed. The investigation should try to discern the root cause of a patient's exposure to *Legionella*.
        - The McLaren Flint water management team should implement corrective actions as informed by environmental surveillance in the case patient areas to reduce the risk of future exposure. Surveillance of environmental factors such as disinfectant levels and water temperatures should be enhanced in the areas where a case patient may have been exposed to water sources **or in the parts of the water system serving those areas**.
        - The **water management plan should also be reviewed and reassessed for gaps in the plan itself or in its execution**.
    - We would also recommend evaluating the possibility of exposure to aerosolized water in the operating room as part of the cardiac bypass machine.
- There seem to be some questions regarding the patient's symptom onset date. We would recommend re-interviewing the patient or his proxy to get specific information regarding dates, as to inform the period most likely associated with potential exposures. A few tips include:
    - Bringing a calendar: sometimes a calendar, especially if there are other memorable events around the same time, can help orient a patient and improve recall.
    - Asking specifically about the onset and course of each symptom: this patient appears to have had fatigue and cough.
        - Was there a day that the fatigue was noticeably worse? What day was that?
        - When did the cough start?
        - Did he experience trouble breathing? When did that start?
        - Did he have fever or ever feel feverish? When did that start?
        - Etc.
    - If the date of symptom onset remains unclear despite the above efforts, McLaren Flint should evaluate all potential exposures that may have occurred during the patient's hospitalization based on the most conservative possible onset date in order to fully assess the risk of *Legionella* growth and transmission.
- As for performing environmental testing for *Legionella* in the patient's home, we would emphasize that an investigation of the home, if you decide to pursue this course, should not detract from attention paid to McLaren Flint. We would also recommend that careful thought be given to messaging the potential outcomes of testing for *Legionella* prior to approaching the patient or his family. If you decide to perform testing and need help developing a sampling plan or processing the samples, let us know.

Again, let us know at any point how we can be of assistance.
Many thanks,
Laura

Laura A. Cooley, MD, MPHTM
LCDR, U.S. Public Health Service
Respiratory Diseases Branch
National Center for Immunization and Respiratory Diseases
Centers for Disease Control and Prevention
1600 Clifton Road, Mailstop C-25
Atlanta, GA 30329