

AHCA/NCAL Clinical Scenario Teaching Tool – Outbreak

Clinical Scenario – Outbreak

St. Mary's Nursing home has been in operation for several decades. Aside from regular maintenance efforts, St. Mary's has not undergone major renovations or updates since it was built. The building appears old, evident from its extensive brick exterior and the presence of a gravel parking lot. The interior layout is reflective of older building standards; older plumbing fixtures, such as sinks, toilets and showers are visibly dated in style and design.

Space is limited at this facility. Hoyer lifts and wheelchairs line the hallways, causing staff to reach between equipment to grab medical disinfectant wipes. On the other hand, smiles and laughter are abundant in this facility. Many current residents, families, and staff have fond memories of past holiday parties or friendly, competitive banter while playing board games and an overall positive impression of the care provided there.

One hot Monday, during the morning meeting, Craig, the building & grounds supervisor, reported to Brian, the nursing home administrator two issues: 1) irregular water flow from one of the kitchen sinks and 2) a foul smell coming from a shower head in the bathing room. This reminded Brian that Craig had previously reported inconsistent water temperatures throughout the facility last summer.

The morning meeting ended after the Assistant Director of Nursing (ADON) reported three residents who exhibited symptoms of a cough, fever, and difficulty breathing, suggestive of pneumonia had been transferred to the nearby community hospital within the previous 24 hours. There were also a few other residents now with similar symptoms who were being monitored in the facility but were not sick enough to need hospitalization.

Shortly after, the ADON received a call from the ICU physician asking additional questions about the three residents who were recently transferred to the hospital for pneumonia. All three were being treated empirically for a lower respiratory infection but had not responded to the initial regime and deteriorated landing them in the ICU. Brian called Craig, the Director of Nursing, and ADON into his office, and they considered the three residents who were transferred to a higher level of care for fever and respiratory symptoms. The questions the ICU physician posed were discussed, including the possibility they could all be related in some way. After listing presenting signs and symptoms, diagnostics, and unit-level commonalities, the plan was to regroup later that afternoon with possible theories. A few minutes later, the head ER doctor's phone call was transferred to Brian's office. A long discussion about the residents' confirmed Legionnaires' disease resulted in theorizing a possible outbreak and additional testing needed for confirmation. Brian immediately called the group back in the office after the call to develop a timeline and outline the next steps to be taken.





Questions

- 1. How is Legionella bacteria primarily transmitted in a healthcare setting?
 - a. Direct contact with an infected person
 - b. Ingestion of contaminated food or water
 - c. Inhalation of airborne droplets containing the bacteria
 - d. Contact with contaminated surfaces or objects

2. What type of environment is conducive to the growth of Legionella bacteria?

- a. Low humidity and dry conditions
- b. Highly chlorinated water
- c. Stagnant water and warm temperatures
- d. High altitude and cold climates
- 3. There's suspicion that the water system in the facility might be contaminated with Legionella bacteria. What is the most appropriate immediate action upon suspecting Legionella contamination in the water system of a nursing home?
 - a. Inform the residents and staff about the potential risk.
 - b. Work with your local health department to investigate and test the water for Legionella.
 - c. Shut down the water system to prevent further exposure.
 - d. Resume normal operations.

4. What diagnostic test is recommended by the CDC to confirm Legionnaires' disease?

- a. Blood culture and urine culture
- b. Lower respiratory culture and Urine antigen test
- c. Sputum culture and Chest X-ray
- d. Throat swab and urine culture
- 5. In this scenario, what strategy should have been used to help prevent Legionella contamination in the nursing home's water system?
 - a. Implementing a comprehensive water management plan (WMP).
 - b. Using only cold water for all purposes.
 - c. Draining the water system regularly.
 - d. Ignoring the issue as Legionella bacteria cannot be eradicated.



- 6. What measures can be taken as part of a WMP to prevent Legionella contamination in water systems?
 - a. Increasing water temperature to above 51°C (124°F)
 - b. Adding chlorine to the water system
 - c. Flushing stagnant water regularly
 - d. All of the above
- 7. Reflecting on the scenario where Legionella was overlooked, what factors do you think contributed to this oversight?

8. As the Infection Preventionist at this facility, what would you incorporate in longterm planning once the Legionella outbreak is managed?