

Reducing the Positive Rate of Legionella in Hospital Water Supply Systems in a Certain Region of Southern Taiwan

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B A N G K O K

Yueh-Ju Chen^{1*}、Yu-Ting Tsai¹、Huan-Yi Wu²、Yuan-Ting Hong²

¹Infection Control Office ²Infectious Disease Department

Pingtung Veterans General Hospital Pingtung City, Taiwan

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Introduction

Legionella is a bacterium ubiquitously present in natural aquatic environments, soil, and man-made water systems. It preferentially colonizes warm, low-flow, or stagnant water environments, including cooling towers, hot water systems, and humidifiers, and can persist even in chlorine-treated municipal water supplies. Among high-risk populations in hospital settings, infection can lead to severe pneumonia and potentially fatal outcomes.

Methods

Phase 1: Install faucet filters. (Figure 1), **Phase 2:** Clean and disinfect the cooling towers again and use ozone to disinfect the water heaters. **Phase 3:** Control the hot water temperature system by setting it at 50°C (Figure 2). Specific interventions for high-risk areas include point-of-use filter installation at faucet outlets when patient-end samples test positive daily flushing of water sources in vacant rooms for 2-3 minutes, thermostatic controls on water heaters maintaining temperatures above 50°C, and 2-month follow-up monitoring of positive sites.



Figure 1. water filters

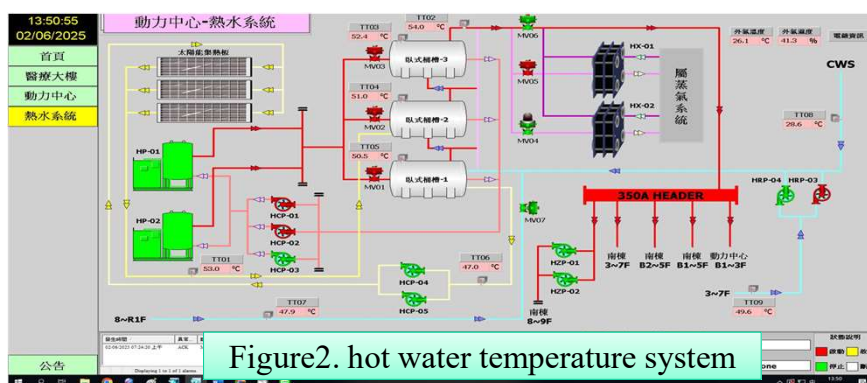


Figure 2. hot water temperature system

Results

Since the hospital's opening in November 2023, water quality testing for Legionella has been conducted biannually, covering intensive care units (ICUs), neonatal units, and other facilities, with 23-25 sampling points. *L. pneumophila*. The culture positive rate decreased from 36% (8/22) in Feb 2024 to 0% in June 2025 (0/22) (Figure 3).

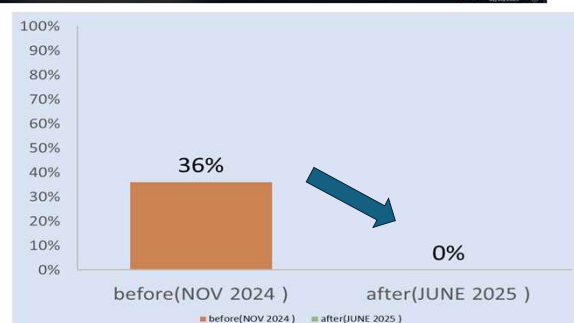


Figure 3. *L. pneumophila* positive rate

Conclusion

Upon detection of Legionella in hospital water systems, immediate implementation of systematic response and remediation measures is essential to safeguard patient and healthcare worker safety. This comprehensive approach ensures effective prevention and control of Legionella contamination in healthcare settings.

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屏東榮民總醫院
PINGTUNG VETERANS GENERAL HOSPITAL