

Efficacy of point-of-entry copper silver ionization system in eradicating legionella pneumophila in a tropical tertiary care hospital: implications for hospitals contaminated with Legionella in both hot and cold water.

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摘要

Abstract

Summary A medical centre in Southern Taiwan experienced an outbreak of nosocomial Legionnaires' disease, with the water distribution system thought to be the source of the infection. Even after two superheats and flush, the rate of Legionella positivity in distal sites in hospital wards and intensive care units (ICUs) was 14% and 66%, respectively. Copper-silver ionisation was therefore implemented in an attempt to control Legionella colonisation in both hot- and cold-water systems. Environmental cultures and ion concentration testing were performed to evaluate the efficacy of ionisation. When the system was activated, no significant change in rate of Legionella positivity in the hospital wards (20% vs baseline of 30%) and ICUs (28% vs baseline of 34%) of the test buildings over a three-month period was found, although all Legionella positivity rates were below 30%, an arbitrary target for Legionnaires' disease prevention. When ion concentrations were increased from month 4 to month 7, however, the rate of Legionella positivity decreased significantly to 5% (mean) in hospital wards ($P = 0.037$) and 16% (mean) in ICUs ($P = 0.037$). Legionella positivity