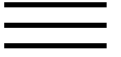


system in eradicating *Legionella pneumophila* in a tropical tertiary care hospital: implications for hospitals contaminated with *Legionella* in both hot and cold water.

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Efficacy of point-of-entry copper-silver ionisation 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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### 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 was further reduced to 0% in hospital wards and 5% (mean) in ICUs while 50% sites were still positive for Legionella in a control building. Although Legionella was not completely eradicated during the study period, no culture- or urine-confirmed hospital-acquired Legionnaires' disease was reported. Ionisation was effective in controlling Legionella for both hot and cold water, and may be an attractive alternative as a point-of-entry systematic disinfection solution for Legionella.



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## Keywords

Point-of-entry ionisation; Legionella disinfection; Hospital infection control

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