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The rate of *Legionella pneumophila* colonization in hospital hot water network after time flow taps installation

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**SHORT REPORT TITLE:** The rate of *Legionella pneumophila* colonization in hospital hot water network after time flow taps installation.

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**Running title:** Quality control of Italian dialysis water plants

**Keywords:** Legionella, time flow taps, hospital water network, chlorine dioxide

## Abstract

In hospital water systems legionellae may be resistant to disinfectants in pipework, which is a problem particularly in areas where there is low flow or stagnation of water. We evaluated legionella colonization of a water network of an Italian hospital after time flow taps (TFTs) installation in proximity to dead legs. The water volume flushed was 64 L/day from May 2016, and 192 L/day from December 2016. Before TFTs installation, *Legionella pneumophila* sg2-14 was detected in all points ( $4 \times 10^4 \pm 3.1 \times 10^4$  CFU/L). All sites remained positive ( $2.9 \times 10^4 \pm 1.9 \times 10^4$  CFU/L) through November 2016. From December 2016 Legionella persisted in one point only ( $2 \times 10^2$  to  $6.8 \times 10^3$  CFU/L). TFTs with chemical disinfection may reduce legionella colonization associated with dead legs.

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