Legionella pneumophila in residential water supplies: environmental surveillance with clinical assessment for Legionnaires' disease.

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Although cases of community-acquired Legionnaires' disease have been epidemiologically linked to residential water supplies, the risk of acquiring Legionnaires' disease from exposure to Legionella pneumophila in residential water systems is uncertain. The residential water supplies of 218 members of the American Legion in six different geographical areas in Pittsburgh were cultured for L. pneumophila. Residents of the homes provided a recent medical history and a blood sample for detection of antibodies to legionella. A urine sample for legionella urinary antigen testing was also requested from individuals residing in legionella-positive homes and individuals with a positive antibody test. Six percent (14/218) of the homes yielded L. pneumophila (range within six areas 0-22%). Lower hot water tank temperature was significantly associated with legionella positivity (P less than 0.01). Analysis of water samples for mineral content showed no association between legionella positivity and concentrations of calcium and magnesium. Water samples from the area where 22% of the homes surveyed were positive for legionella had a higher iron content than water samples from the other areas tested. None of the individuals residing in legionella-positive homes showed elevated antibody titres to legionella or the presence of legionella antigen in urine. For the immunocompetent hosts, the risk of contracting Legionnaires' disease from exposure to contaminated household water supplies in the Pittsburgh area appears to be low.

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