

184 Legionella Infections

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Legionellosis refers to the two clinical syndromes caused by bacteria of the genus *Legionella*. *Pontiac fever* is an acute, febrile, self-limited illness that has been serologically linked to *Legionella* species, whereas *Legionnaires' disease* is the designation for pneumonia caused by these species. Legionnaires' disease was first recognized in 1976, when an outbreak of pneumonia took place at a Philadelphia hotel during an American Legion convention.

MICROBIOLOGY

The family Legionellaceae comprises more than 50 species with more than 70 serogroups. The species *L. pneumophila* causes 80–90% of human infections and includes at least 16 serogroups; serogroups 1, 4, and 6 are most commonly implicated in human infections. To date, 18 species other than *L. pneumophila* have been associated with human infections, among which *L. micdadei* (Pittsburgh pneumonia agent), *L. bozemanii*, *L. dumoffii*, and *L. longbeachae* are the most common. Members of the Legionellaceae are aerobic gram-negative bacilli that do not grow on routine microbiologic media. Buffered charcoal yeast extract (BCYE) agar is the medium used to grow *Legionella*.

ECOLOGY AND TRANSMISSION



The natural habitats for *L. pneumophila* are aquatic bodies, including lakes and streams. *L. longbeachae* has been isolated from natural soil. Commercial potting soil has been suggested as the reservoir for *L. longbeachae* infections in Australia and New Zealand. *Legionella* can survive under a wide range of environmental conditions; for example, the organisms can live for years in refrigerated water samples. Natural bodies of water contain only small numbers of legionellae. However, once the organisms enter human-constructed aquatic reservoirs (such as drinking-water systems), they can grow and proliferate. Factors known to enhance colonization by and amplification of legionellae include warm temperatures (25°–42°C) and the presence of scale and sediment. *L. pneumophila* can form microcolonies within biofilms; its eradication from drinking-water systems requires disinfectants that can penetrate the biofilm. The presence