

LEGIONELLOSIS: Notes about the Disease

Although there are at least 39 species of *Legionella* bacteria, the best-known and most common causative agent for pneumonia (the most common clinical presentation) is *L. pneumophila*. In 1976, it took a bit of epidemiologic and microbiologic sleuthing to identify this “new” organism as the cause of an outbreak of pneumonia (“Legionnaires’ disease” (LD)) at an American Legion convention at a Philadelphia, Pennsylvania hotel.

A number of LD outbreaks were identified retrospectively after the 1976 investigation. Legionellosis takes two clinical forms: acute bacterial pneumonia, often accompanied by abdominal pain and diarrhea (LD), and Pontiac fever. The latter, named for a 1968 outbreak originating in the Pontiac, Michigan, health department, is a self-limited influenza-like illness that may actually be an immunologic response to inhaled bacterial antigen instead of an actual infection.

Pontiac fever has only been recognized in outbreak situations. In contrast, more often than not, LD occurs as sporadic individual cases, although, even in North Carolina, outbreaks continue to occur.¹ NC has a link to the history of legionellosis in that the first retrospectively confirmed case of LD occurred at Fort Bragg during the summer of 1943.[†]

Legionella organisms are fairly common contaminants of aqueous environments, particularly in concert with free-living amoebae. Most outbreaks can be traced to aerosol exposure via air conditioner cooling towers, hot water systems (e.g., showers), misting devices, etc. However, some evidence exists to suggest dust or other soil exposure as a source. Those most susceptible to LD include smokers, the immunocompromised, the elderly, and those with chronic lung disease.

Preventing LD devolves upon protecting the public against exposure to contaminated aerosols by, for example, properly maintaining cooling towers and safeguarding hot water systems in health care facilities where immunocompromised patients reside.

† There is confusion in the medical literature (including the *Control of Communicable Diseases Manual*) about this date. Hugh Tatlock was a young US Army medical officer stationed at Fort Bragg in the early 1940s. In 1944, he investigated an outbreak of “pretibial fever” (also called “Fort Bragg fever”), having worked on a separate respiratory illness cluster there the previous summer. He isolated different infectious agents from patients in each of these outbreaks. After years of work in different laboratories and some human experimentation, the pretibial fever agent was shown to be *Leptospira interrogans*, serovar *autumnalis*. The other “Tatlock agent,” initially described by Dr. Tatlock as “rickettsial-like,” also underwent a convoluted series of studies and eventually was identified as *Legionella micdadei*.²

1. J. Engel, “Water, Water, Everywhere! Legionnaires’ disease in NC,” *Epi Notes* 2006-1 (2006): 6-7, 9, www.epi.state.nc.us/epi/pdf/en2006-1.pdf.
2. WS Jordan Jr. “Section 1: Commission on Acute Respiratory Diseases,” *The Armed Forces Epidemiological Board: The Histories of the Commissions*, ed. TE Woodward (1994): 79-83, <http://history.amedd.army.mil/booksdocs/historiesofcomsn/section1.htm>.