

Researchers find triple as many Legionnaires' cases as previously reported

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The first New Zealand-wide study of the burden of Legionnaires' disease has found triple the number of cases of this form of pneumonia than previously reported.

The study, led by University of Otago, Christchurch Professor David Murdoch, has just been published in *The Lancet Infectious Diseases*. It gives the first accurate picture of the burden of the disease in New Zealand, but has international implications as few places routinely test for the potentially deadly—and preventable—bacteria.

The researchers arranged for people hospitalized with pneumonia from almost all of New Zealand during one calendar year to have a specialized test that detects *Legionella* bacteria. Three times the number of cases were diagnosed compared with the average number of cases confirmed over each of the previous three years.

Specifically, the researchers found:

- Almost 60 percent of patients were aged over 65
- Nearly a third of confirmed cases lived in more socio-economically deprived areas
- Almost 80 percent of patients had been hospitalized at some time over the previous five years, but fewer than half (41 percent) had been hospitalized for respiratory disease
- High rates of the disease in areas which had previously reported low numbers of cases. Notably, the Bay of Plenty District Health Board area (more than 8 cases per 100,000 people) and the Hawkes Bay and the Waitemata (which both had between six and eight cases per 100,000). Canterbury also had rates of between six and eight cases per 100,000
- About two-thirds of cases were admitted to hospital during winter and spring

Professor Murdoch, a clinical microbiologist and researcher, says a special test called the [polymerase chain reaction](#) (PCR) is the best way to diagnose Legionnaires' disease as chest x-rays or other tests cannot differentiate between this and other forms of pneumonia. The disease

requires different treatments from other types of pneumonia. The sooner the infection is treated with bacteria-specific medication, the better the prognosis, he says.

"This research shows the incidence of Legionnaires' disease in New Zealand is much higher than previously identified. Indeed, we have the highest reported incidence in the world. The research also supports the routine use of the PCR test to detect and ensure access to appropriate treatments," Professor Murdoch says.

The results are relevant to other countries as the bacteria causing Legionnaires' disease is present internationally but few countries have routine testing in place, Professor Murdoch says.

The study identified the most common form of bacteria causing the [disease](#) in New Zealanders was *Legionella longbeachae* (in 63 percent of cases). This strain is found in soil and composted [plant material](#), and people at greatest risk are those involved in gardening activities.

To get their results, the research team tested all respiratory samples from patients with pneumonia admitted to any of the 20 participating hospitals between May 2015 and May 2016. During the year a total of 238 cases were identified, or 5.4 cases per 100,000 New Zealanders. This was three times the rate expected based on the number of people diagnosed in the preceding three years. Of the 238 cases, 15 died within 90 days of diagnosis and 38 cases required treatment in an intensive care unit (ICU).

Professor Murdoch says the research was possible because of the involvement of staff and laboratories from 20 hospitals and 17 different District Health Boards. It is unusual for this degree of collaboration on research projects, he said.

More information: Patricia C Priest et al, The burden of Legionnaires' disease in New Zealand (LegiNZ): a national surveillance study, *The Lancet Infectious Diseases* (2019). DOI: 10.1016/S1473-3099(19)30113-6

Provided by University of Otago

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