

LEGIONELLA SPP. AND LEGIONELLOSIS IN NEW ZEALAND, 2005-2010: DISEASE EPIDEMIOLOGY AND ENVIRONMENTAL SURVEILLANCE

Frances Graham, *Geohealth laboratory, University of Canterbury; Ministry of Health, New Zealand*
Associate Professor Simon Kingham, *Geohealth laboratory, University of Canterbury, New Zealand*
Dr Paul White, *United Nations, India*

Background and Aims: Legionellosis, an infection caused by the bacterium *Legionella*, is a serious and sometimes fatal cause of community-acquired pneumonia worldwide. In New Zealand two of the most common agents are *L. pneumophila* and *L. longbeachae*. In the past six years, some regions have seen an increase in the number of isolates of *L. longbeachae* and in 2009 it accounted for about 40% of total laboratory confirmed cases – about the same proportion as *L. pneumophila*. This differs from observed patterns in other parts of the world where the predominant species responsible for illness is *L. pneumophila* serogroup 1.

Legionellosis became a notifiable disease in New Zealand in 1980 and since then over 1,400 cases have been laboratory confirmed. The aim of this research was to characterise the incidence rates and occurrence of different species using descriptive epidemiology of surveillance and disease notification data.

Methods: We analysed cases using disease anonymous notification and laboratory surveillance data. Key data fields collected include case demographics, clinical features, laboratory identification (including environmental isolates) of the causative agent and risk factors.

Results: In the five years (2005-2009), overall notification rate was 1.7 per 100,000 but the age-specific notification rate for people 70 years and older was 6.3 per 100,000 population compared with 1.7 per 100,000 in the 40 to 49 year age group – Incidence Rate Ratio 0.27 (95% Confidence limits 0.19 to 0.37, $p < 0.00001$).

Notifications increased considerably in 2010 with an annual rate of 4.6 per 100,000. The increased rate may be a result of changed laboratory testing, direct laboratory notifications, greater clinical awareness of the illness or a true increased incidence of the disease in New Zealand.

Conclusions: The higher rates of legionellosis observed in New Zealand, and high proportion of *L. longbeachae* cases compared with other temperate countries, may be related to environmental factors. This suggests a distinctive legionellosis epidemiology for New Zealand, worthy of further research.