ABSTRACT

Purpose: This study examined temporal trend, seasonality, and geographical variations of legionellosis incidence and mortality in Japan.

Method:

This nationwide observational study used the Japanese Vital Statistics and Infectious Diseases Weekly Report (1999–2017) data to calculate legionellosis crude and age-adjusted incidence and mortality rates per 100,000 population by age and sex. Incidence was compared among the 4 seasons and regional incidence among 47 prefectures.

Results:

Of 13,613 (11,194 men) people with legionellosis in Japan, 725 (569 men) were fatal. Increasing incidence trend occurred from 0.0004 (1999) to 1.37 (2017) per 100,000 population. People aged ≥70 years accounted for 43.1% overall; men's age-adjusted incidence rate was consistently approximately 5 times higher than for women. Significantly higher incidence occurred in summer than in winter (p=0.013). Geographically, highest incidence (≥2.0 per 100,000 population) occurred in Hokuriku District, with increasing trends in Hokkaido and middle-part of Japan. Estimated fatality rates decreased consistently at 5.9% (95% confidence interval: -8.1, -3.5) annually, from 1999–2017, with no trend change point.

Conclusion:

Increasing legionellosis incidence occurred in Japan during 1999–2017, with declining estimated fatality rates. In this aging society and warming world, disease clinical burden may further deteriorate in future due to increasing incidence trends.