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LEGIONELLOSIS IN POLAND IN 2011

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ABSTRACT

OBJECTIVES. The main objective of this article is to assess the epidemiology of legionellosis in Poland in 2011, using national surveillance data.

MATERIALS AND METHODS. We reviewed surveillance data published in the annual bulletin “Infectious diseases and poisonings in Poland” from 2005 to 2011, and legionellosis case reports from 2011 sent to the Department of Epidemiology NIPH-NIH by Sanitary-Epidemiological Stations.

RESULTS. In 2011, a total 18 Legionnaires’ disease (Legionnaires’ pneumonia) cases was reported. Annual incidence rate (0.05 per 100,000 population) has dropped by more than 50% compared to previous year, but was similar to the median incidence reported in years 2005-2009. For several years, the legionellosis incidence varies for different regions, but generally is slightly higher in Mazowieckie province; the incidence among men (0.06 per 100,000) is slightly higher than the incidence among women (0.04). In 2011, only sporadic cases have been reported. All patients presented with pneumonia (no Pontiac fever cases) and were hospitalized. Four deaths related to the disease (in patients above 55 years of age) were reported. **Source of infection** was identified only in one hospital-acquired legionellosis. Furthermore, one case was associated with a treatment at a sanatorium; There were two imported cases associated with travel to Italy and France.

CONCLUSIONS. We concluded, that national **surveillance** shall be shifted toward collecting more information about **possible environmental sources of infection / exposures** to *Legionella*.

Keywords: Legionnaires disease, legionellosis, atypical pneumonia, *Legionella sp.*, infectious diseases, epidemiology, Poland, 2011

INTRODUCTION

In Poland, both clinical presentations of legionellosis - **Legionnaires disease (type of pneumonia) and Pontiac fever** (mild flu-like illness) - are mandatory notifiable since 2002. All cases reported by physicians based on clinical, laboratory and/or epidemiological findings are registered. In 2005, EU case definition for **Legionnaires disease** (“confirmed” or “probable” case) have been implemented, however in national surveillance *Legionella pneumophila* of unknown serogroup specific antibody response (EU laboratory criteria for a probable case) meets also laboratory criteria for case confirmation.

The aim of this article is to assess the epidemiology of Legionnaires disease in Poland in 2011, using national surveillance data.

MATERIALS AND METHODS

We reviewed surveillance data from the following sources:

- annual bulletin “Infectious diseases and poisonings in Poland” for the years 2005-2011 (NIPH-NIH, GIS, Warsaw);
- legionellosis case reports from 2011 sent to the Department of Epidemiology NIPH-NIH by Sanitary-Epidemiological Stations.

Legionellosis cases were classified in accordance with standard definition adopted in the European Union and published in Commission Decision of 28 April 2008 amending Decision 2002/253/EC with exception to cases **with demonstrated** *Legionella pneumophila* of unknown serogroup specific antibody response, which in Poland are reported as “confirmed”.

Table I. Legionellosis in Poland in 2005-2011. Number of cases and incidence (per 100,000 population) by province 2005-2011

Province	Median 2005-2009		2010		2011	
	number of cases	incidence	number of cases	incidence	number of cases	incidence
POLAND	21	0.055	36	0.094	18	0.047
1. Dolnośląskie	-	-	-	-	1	0.034
2. Kujawsko-pomorskie	1	0.048	-	-	1	0.048
3. Lubelskie	1	0.046	1	0.046	2	0.092
4. Lubuskie	-	-	1	0.099	1	0.098
5. Łódzkie	-	-	-	-	1	0.039
6. Małopolskie	-	-	1	0.030	-	-
7. Mazowieckie	15	0.291	4	0.076	4	0.076
8. Opolskie	-	-	-	-	-	-
9. Podkarpackie	-	-	-	-	-	-
10. Podlaskie	-	-	-	-	2	0.166
11. Pomorskie	-	-	-	-	1	0.044
12. Śląskie	2	0.043	26	0.561	3	0.065
13. Świętokrzyskie	1	0.078	1	0.079	-	-
14. Warmińsko-mazurskie	-	-	-	-	1	0.069
15. Wielkopolskie	-	-	-	-	1	0.029
16. Zachodniopomorskie	-	-	2	0.118	-	-

Data source: Infectious diseases and poisonings in Poland (annual report). NIPH-NIH. CSI. Warsaw. 2005-2011

RESULTS

In 2011, a total 18 Legionnaires' disease (Legionnaires' pneumonia) cases was reported in Poland – 18 cases less than in 2010, and 3 less than the median number of cases reported in years 2005 – 2009 (Table I). Annual incidence rate in a given year (0.05 per 100,000 population) has dropped by more than 50% compared to previous year, but was similar to the median incidence rate for years 2005-2009. As in the previous year, no cases of Pontiac fever have been registered.

In 2011, only sporadic cases have been reported, but from more (eleven out of sixteen) provinces of the country than in 2010. In addition, draws attention a slightly higher incidence in Mazowieckie province during recent years and a sudden decrease in incidence in Śląskie province, where in previous year two community outbreaks have been reported.

More than half of the total number of reported cases (10 cases) met laboratory criteria for case confirmation and were registered as 'confirmed cases'. Out of these cases: 8 patients were confirmed by detection of *Legionella pneumophilla* serogroup 1 antigen in urine whereas 2 patients showed a *Legionella pneumophila* specific antibody response. Laboratory criteria for a probable case - single high titre of antibodies against *Legionella sp.* – were met by 8 patients.

In 2011, most cases occurred in third (6 cases) and fourth quarter (5 cases) of the year.

Incidence among men (0.06 per 100,000) was slightly higher than the incidence among women (0.04). In recent years, there have been noticeable increase in incidence among people over 40 years of age, especially

men; the highest incidence (0.23 per 100,000) in 2011, was reported among men in the age group 60 - 69 years.

Age of patients varies from 7 to 84 years, however legionellosis was most commonly diagnosed in older people, who are more susceptible to the disease; the median age = 54 years (interquartile range = 32), there were also two cases among children less than 14 diagnosed in children's hospital in Lublin.

Only sporadic cases have been reported, all patients presented with pneumonia and were hospitalized. According to the State Sanitary Inspection, there were four deaths related to the disease - among patients above 55 years of age.

Environmental investigation has been conducted in three cases, but source of infection was determined only in one hospital-acquired legionellosis – *Legionella sp.* (in amounts 2800 cfu/l of water) was found in hospital's hot water distribution system. Furthermore, one case was associated with a treatment at a sanatorium and two patients reported stay on the lake before onset of illness. All registered cases except two were acquired in Poland. Two infections were associated with travel abroad – a tourist traveling to Italy and a tour bus driver traveling to France.

SUMMARY AND CONCLUSIONS

In 2011, despite a sudden decrease in incidence rate compared to previous year, legionellosis has been reported to occur in more provinces than in 2010. Annual incidence rate in a given year corresponded to the median rate for years 2005-2009.

From surveillance point of view, it is essential to increase interest in early recognition of Legionnaires' disease, as a potential threat to public health. Timely recognition of *Legionella pneumonia* provides opportunity to carry out environmental studies and implement preventive measures. Therefore, it is important to conduct analysis in terms of the environment in which patients most likely acquire the infection. In the majority of cases reported in 2011, no environmental investigation has been conducted to determine possible source of infection or individual risk factors.

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