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## LYME DISEASE IN POLAND IN 2013\*

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### ABSTRACT

**INTRODUCTION.** Lyme disease is the most common tick-borne disease, caused by spirochetes of the *Borrelia* genus transmitted by ticks of the *Ixodes* genus. Infection caused by *Borrelia burgdorferi* occur throughout Poland and therefore, according also to ECDC description, the whole country should be considered as endemic area.

**OBJECTIVES.** The aim of this study was to assess the epidemiological situation of Lyme disease in Poland in 2013 in comparison to the previous years.

**MATERIALS AND METHODS.** The descriptive analysis was based on data retrieved from routine mandatory surveillance system and published in the annual bulletin “Infectious diseases and poisonings in Poland in 2013” (MP Czarkowski et al., Warsaw 2014, NIZP-PZH, GIS).

**RESULTS.** In total, 12,773 cases of Lyme disease registered in Poland in 2013, i.e. 45% more cases than in 2012. The overall incidence in the country was 33.2 per 100,000 population. The highest incidence rate was recorded in Podlaskie voivodeship – 100.2 per 100,000. In 2013, 2,155 people were hospitalized due to Lyme disease.

**SUMMARY AND CONCLUSIONS.** In 2013 there was a significant increase in the incidence of Lyme disease in Poland. In comparison to the previous year, about 45% more cases were registered in 2013.

**Key words:** Lyme disease, epidemiology, Poland, 2013

### INTRODUCTION

Lyme disease is the most common tick-borne disease, caused by spirochetes of the genus *Borrelia* transmitted by ticks of the genus *Ixodes*. Most cases of Lyme disease in Poland is being recognized in the north-east of the country. However this trend is changing towards greater territorial differentiation in occurrence of the disease. Due to the fact that the *Borrelia burgdorferi* infection can occur throughout the country, both in forest areas and in city parks, as recommended by ECDC the whole country should be regarded as endemic. The ticks activity begins in May and lasts until November, most cases of the infection (i.e. about 80%) occur in the summer months (third quarter of the year).

### OBJECTIVE

The aim of this study is to assess the epidemiological situation of Lyme disease in Poland in 2013 comparison to the previous years.

### MATERIALS AND METHODS

Assessment of the epidemiological situation of Lyme disease in Poland was based on data published in the annual bulletin “Infectious diseases and poisonings in Poland in 2013” (MP Czarkowski et al., Warsaw 2014, NIZP-PZH, GIS). Lyme disease case classification in 2013 was based on case definitions developed for epidemiological surveillance in years 2012-2013 (“Definitions of infectious disease cases for epidemiological surveillance” 2012, Department of Epidemiology NIZP-PZH). As in previous years, cases were classified as probable and confirmed. A case was classified as a probable case if a person met the clinical criteria for late-phase of Lyme disease or those who were excluded for other reasons. To be classified as confirmed case, patient needed to fulfill clinical criteria for early-phase (without laboratory confirmation) or both clinical and laboratory criteria. Clinical criteria include symptoms of early or late stage of Lyme disease. Laboratory criteria of case definition are:

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Tab.1. Borreliosis in Poland in 2013. Cases, incidence rate and hospitalisation according to province.

Poland	The no of cases in quarters				No of cases	Incidence/100 000	Hospitalisation	
	I	II	III	IV			Number	%
Province	1564	2035	4602	4572	12773	33.2	2155	16.9
1. Dolnośląskie	79	91	204	212	586	20.1	125	21.3
2. Kujawsko-Pomorskie	40	60	195	135	430	20.5	103	24.0
3. Lubelskie	83	176	267	290	816	37.8	188	23.0
4. Lubuskie	39	37	135	139	350	34.2	8	2.3
5. Łódzkie	44	41	101	105	291	11.6	43	14.8
6. Małopolskie	190	286	746	595	1817	54.1	198	10.9
7. Mazowieckie	183	234	472	580	1469	27.7	147	10.0
8. Opolskie	74	73	145	139	431	42.8	83	19.3
9. Podkarpackie	72	165	459	292	988	46.4	82	8.3
10. Podlaskie	218	207	390	384	1199	100.2	288	24.0
11. Pomorskie	45	58	190	214	507	22.1	176	34.7
12. Śląskie	298	361	742	877	2278	49.5	360	15.8
13. Świętokrzyskie	25	27	62	75	189	14.9	42	22.2
14. Warmińsko-Mazurskie	104	136	241	255	736	50.8	190	25.8
15. Wielkopolskie	23	33	94	91	241	7.0	48	19.9
16. Zachodniopomorskie	47	50	159	189	445	25.9	74	16.6

- for both phases and its manifestations of Lyme disease - positive culture for *B. burgdorferi* in clinical material,
- for Lyme arthritis – demonstration of diagnostic levels of IgG antibodies,
- for neuroborreliosis - demonstration of the local synthesis of the specific antibodies in the central nervous system and/or significant increase of specific antibodies in serum,
- for Lyme disease cardiovascular system disorder and lymphocytoma - significant increase of specific antibodies in serum.

It should be emphasized that the presence of specific antibodies detected with immunoenzymatic methods should be confirmed using Western blot test.

## RESULTS

In total, there were 12,773 cases of Lyme disease registered in Poland in 2013, i.e. 45% more cases than in 2012 (Tab.I). The overall incidence in the country was 33.2 per 100,000 population and was higher by ten in comparison to the previous year. Substantial territorial diversification of disease incidence has been observed in the country: from 7.0 per 100,000 in Wielkopolskie voivodeship to 100.2 per 100,000 in Podlaskie voivodeship (Tab.I).

In 2013, the number of cases in Śląskie, Podlaskie, Mazowieckie and Małopolskie voivodeships accounted for half (53%) of all cases reported to the surveillance in the country. In comparison with 2012, in all voivodeships there was an increase in number of registered cases - the largest in the Małopolskie (by 119%) and in Mazowieckie (by 96%) voivodeships (Tab.I). In other

provinces the increase was from 12% in the Wielkopolskie to 47% in Podkarpackie voivodeship.

Quarterly evaluation of Lyme disease situation in Poland verifies an increase in the number of clinical diagnoses during the period of the greatest tick activity, i.e. from May to November. The number of reported cases in the second and third quarter of 2013 constituted 72% of the total number of cases.

Due to Lyme disease 2155 were hospitalized (16.9% of all reported cases). The highest proportion of hospitalized cases was recorded in Pomorskie and Warmińsko-Mazurskie voivodeship. The lowest number of hospitalized cases due to Lyme disease was notified from Lubuskie and Podkarpackie voivodeship.

## SUMMARY AND CONCLUSIONS

In 2013, about 45% more Lyme disease cases were registered in Poland in comparison to the previous year. The increase was observed in all voivodeships of the country, which may indicate the improvement of the sensitivity of the epidemiological surveillance of the disease.

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