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## CHICKENPOX IN POLAND IN 2012

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### ABSTRACT

**BACKGROUND.** A number of chickenpox cases, occurring especially in children, indicates the rationale for the use of chickenpox vaccinations. In Poland since 2002, chickenpox vaccination is included in the National Immunisation Programme as recommended.

**AIM.** To assess epidemiological situation of chickenpox in Poland in 2012 in comparison to previous years.

**METHODS.** The descriptive analysis was based on data retrieved from routine mandatory surveillance system and published in the annual bulletins “Infectious diseases and poisonings in Poland in 2012” and “Vaccinations in Poland in 2012” (Czarkowski MP i in., Warszawa 2013, NIZP-PZH i GIS). National Immunisation Programme for year 2012 was also used.

**RESULTS.** In 2012, 208,276 cases of chickenpox were registered in Poland. The highest number of cases was reported in Śląskie voivodeship, the lowest in Podlaskie voivodeship. Mumps incidence was 540.5 per 100,000 and was higher than in 2011 (448.7). The highest incidence was recorded in children aged 4 years (7,611.5 per 100,000). The chickenpox incidence among men (570.7) was higher than among women (512.2). The incidence among rural residents (553.9) was higher than among urban residents (531.8). Number of cases hospitalized due to mumps was 1,361. Number of people vaccinated against chickenpox was 56,213.

**SUMMARY.** In 2012, there was an increase in the incidence of smallpox in Poland. This trend is continuing since 2004, which can be partly explained by improved surveillance of the disease

**Keywords:** *chickenpox, varicella, epidemiology, Poland 2012*

### INTRODUCTION

A number of chickenpox cases, occurring especially in children, indicates the rationale for the use of chickenpox vaccinations. In Poland since 2002, chickenpox vaccination is included in the National Immunisation Programme as recommended. In order to vaccinate people at risk of chickenpox infection two doses of chickenpox vaccine should be given in accordance with the current National Immunization Program.

### MATERIAL AND METHODS

The descriptive analysis of epidemiological situation of chickenpox was based on data retrieved from routine mandatory surveillance system and published in the annual bulletin “Infectious diseases and poisonings in Poland in 2012”. Vaccination coverage was

assessed based on data published in the annual bulletin “Vaccinations in Poland in 2012” (Czarkowski MP i in., Warszawa 2013, NIZP-PZH i GIS). Detailed recommendations for vaccination against chickenpox come from National Immunisation Programme for 2012.

### RESULTS

#### **Epidemiological situation of chickenpox in 2012.**

In 2012, 208,276 cases of chickenpox were registered in Poland, i.e. 20.5% more than in the previous year. From 2002, an increasing trend in chickenpox incidence is observed (Figure 1).

The incidence of chickenpox was 540.5 per 100,000 in 2012 and was higher by 20.5% compared to 2011. Comparing to 2011, the largest increase in incidence, i.e. by 107.7%, was recorded in Pomorskie voivodeship, and the biggest decrease (by 6.7%) in Lubuskie voivodeship (Table I). In 2012, the highest number of

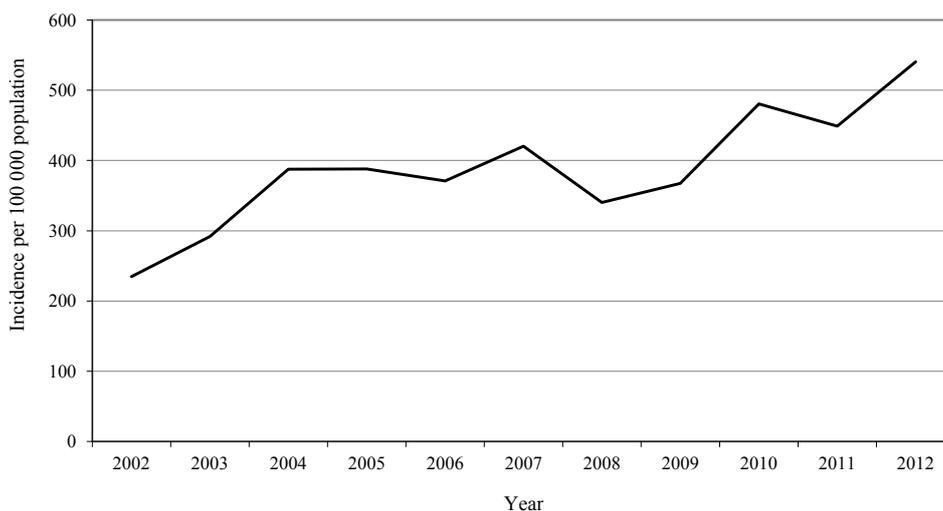


Fig. 1. Chickenpox in Poland in 2002-2012. Incidence per 100,000 population

Table 1. Chickenpox in Poland in 2006-2012. Number of cases and incidence per 100,000 population and number and percentage of hospitalized cases by voivodeship

Voivodeship	Median 2006-2010		2011		2012		hospitalization	
	number of cases	incidence per 100 000	number of cases	incidence per 100 000	number of cases	incidence per 100 000	number	%
POLAND	141 349	370.7	172 855	448.7	208 276	540.5	1 361	0.7
1 Dolnoslaskie	11 064	383.6	11 233	385.2	12 335	423.1	37	0.3
2 Kujawsko-pomorskie	9 641	466.6	10 363	493.9	15 882	757.1	138	0.9
3 Lubelskie	6 221	287.6	10 594	487.1	10 593	488.5	58	0.6
4 Lubuskie	4 494	445.6	6 244	610.3	5 852	572.0	18	0.3
5 Lodzkie	7 223	282.0	7 998	315.2	11 417	451.5	100	0.9
6 Malopolskie	11 455	350.5	14 671	439.1	15 848	473.0	73	0.5
7 Mazowieckie	19 413	373.7	25 686	487.0	25 308	478.1	196	0.8
8 Opolskie	4 857	570.0	5 519	543.4	6 657	657.6	21	0.3
9 Podkarpackie	5 439	259.3	6 848	321.8	7 626	358.2	60	0.8
10 Podlaskie	4 367	376.0	5 175	430.5	4 908	409.1	75	1.5
11 Pomorskie	7 636	346.9	7 304	320.5	15 224	665.7	235	1.5
12 Slaskie	21 082	450.8	23 499	507.5	29 741	643.7	112	0.4
13 Swietokrzyskie	6 455	509.2	5 730	447.6	7 004	549.1	46	0.7
14 Warminsko-mazurskie	6 111	428.2	6 981	480.4	8 063	555.3	20	0.3
15 Wielkopolskie	15 534	456.5	17 360	503.2	21 821	630.9	134	0.6
16 Zachodniopomorskie	4 108	242.6	7 650	444.0	9 997	580.5	38	0.4

cases was recorded in March (26,459), the lowest in September (2,052) (Figure 2).

The highest number of cases was recorded in Śląskie voivodeship (29,741) and Mazowieckie voivodeship (25,308), the lowest number of cases was registered in Podlaskie voivodeship (4,908) and Lubuskie voivodeship (5,852). In 2012, the highest number of chickenpox cases was recorded in children and adolescents up to 14 years of age - 190 876 cases, which accounted for 91.6% of the total number of registered cases. The number of cases in children aged 0-4 years and 5-9 years was 93 225 and 79,450, respectively. This was 44.8% and 38.1% of the total number of registered cases, respectively. In people over 20 years of age chickenpox cases accounted for only 5.9% of the total number of cases (Table II).

In 2012, chickenpox incidence in males was 570.7 per 100,000 and was higher by 11.4% compared to incidence in females (512.2). There were no significant differences in incidence between males and females in age groups. A slightly higher incidence in women compared with men was recorded in age group 20-34 years. The highest incidence i.e. 4 446.9 per 100,000 was in children aged 0-4 years.

Incidence in rural population was 553.9 per 100,000 and was 4.2% higher compared to incidence in urban population (531.8). The highest incidence was observed in the cities with population of <20,000 (596.0 per 100,000), the lowest in the cities with population of  $\geq 100,000$  (492.9). In children aged 0-4 years, a higher incidence was observed in cities (5,226.5 vs. 3,537.2), whilst in children aged 5-9 years in the rural population (407.2 vs. 4,423.5).

Table 2. Chickenpox in Poland in 2011-2012. Number of cases, incidence per 100,000 population and percentage in age groups

Age group	2011			2012		
	number of cases	incidence rate	%	number of cases	incidence rate	%
0-4	74 349	3 597.7	43.0	93 225	4 514.7	44.8
0	5 804	1 459.5	3.4	7 051	1 834.9	3.4
1	9 154	2 161.5	5.3	11 171	2 757.1	5.4
2	12 324	2 847.6	7.1	14 602	3 442.8	7.0
3	22 090	5 280.4	12.8	28 561	6 595.4	13.7
4	24 977	6 334.5	14.5	31 840	7 611.5	15.3
5-9	67 176	3 708.7	38.9	79 450	4 310.1	38.1
5	22 501	5 967.4	13.0	28 911	7 333.0	13.9
6	18 076	4 965.6	10.5	20 995	5 569.9	10.1
7	11 551	3 253.5	6.7	13 086	3 596.2	6.3
8	8 415	2 379.5	4.9	9 187	2 588.8	4.4
9	6 633	1 834.7	3.8	7 271	2 057.4	3.5
10-14	16 902	863.9	9.8	18 201	957.9	8.7
15-19	4 261	179.8	2.5	5 109	225.4	2.5
20-29	4 144	68.45	2.4	5 087	85.7	2.4
30-39	4 433	73.85	2.6	5 210	85.9	2.5
40 +	1 590	8.92	0.9	1 994	10.8	1.0
Total	172 855	448.7	100.0	208 276	540.5	100.0

In 2012, number of cases hospitalized due to mumps was 1,361, representing 0.7% of the total number of all registered cases. The highest number of hospitalized cases was in pomorskie 235 and mazowieckie voivodeship - 196. The lowest number of hospitalized cases was in lubuskie voivodeship - 18 (Table I).

**Vaccinations against chickenpox in 2012.** There are two types of vaccine against chickenpox available in Poland. Monovalent vaccine containing attenuated live strain of varicella-zoster virus and polyvalent vaccine, combined with measles, mumps and rubella. The use of monovalent vaccine is recommended for those aged above 9 months, and for post exposure prophylaxis. Polyvalent vaccine is recommended for children from 11 months to 12 years of age. Since 2010, two doses chickenpox vaccination scheme is recommended in

Poland. Two doses of vaccine should be given with an interval of at least 6 weeks.

Since 2002, vaccination against chickenpox belongs to a group of recommended vaccinations. According to the National Immunisation Programme for 2012, vaccination against chickenpox is mandatory only for those who are particularly vulnerable to infection. This group includes children under 12 years of age whose immunity is impaired: HIV-infected, with acute lymphoblastic leukemia in remission and with prior immunosuppressive therapy or chemotherapy. Vaccination against chickenpox is also mandatory for children aged above 12 years who did not have chickenpox and are household contacts of those mentioned above. According to the National Immunization Program for 2011, chickenpox vaccination is recommended for those who have not had chickenpox and have not been vaccinated, and women who have not had chickenpox and are planning to become pregnant.

In 2012, 56,213 people were vaccinated against chickenpox in Poland. This number was higher by 44.3% compared to 2011 (38,943). Among those aged 0-19 years, 54,337 individuals were vaccinated, which account for 96.7% of all people vaccinated against chickenpox in 2012. The highest number of vaccinated individuals was recorded in Mazowieckie (14,310), Śląskie (5,359) and Dolnośląskie voivodeship (5,299). The lowest number of vaccinated individuals was in Świętokrzyskie voivodeship (808).

## SUMMARY AND CONCLUSIONS

Since 2003, an increasing trend of chickenpox incidence is observed in Poland. It can be partly explained by improved surveillance of the disease. The number of people vaccinated against chickenpox is still low. Large differences in the number and percentage of people vaccinated in individual voivodeships needs to be addressed with more intensive promotion of chickenpox vaccinations.

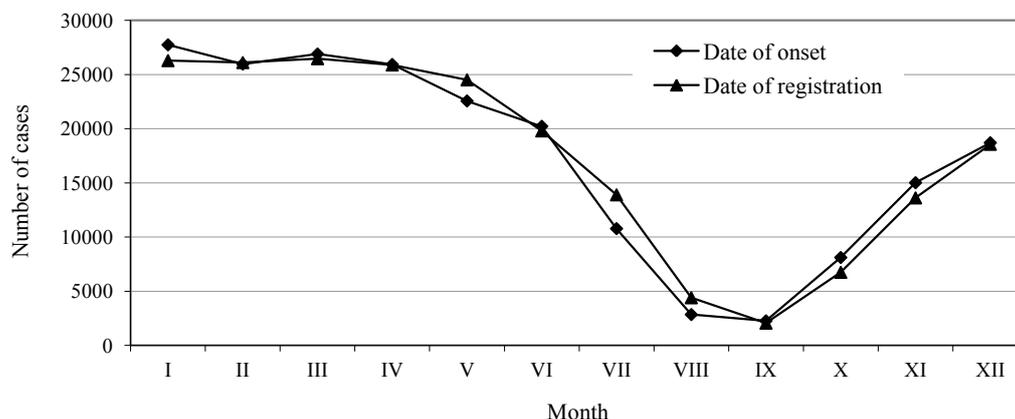


Fig. 2. Chickenpox in Poland in 2012. Number of cases by month

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